

# *Alaska Statewide Climate Summary*

July 2014

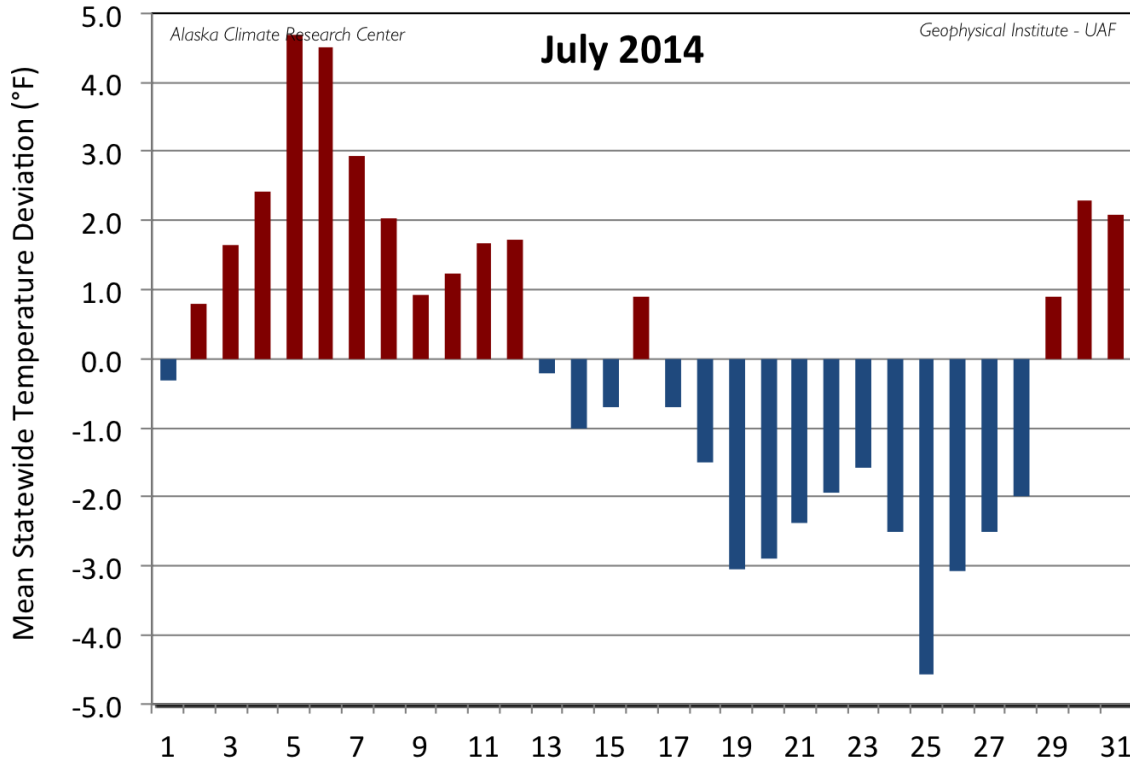
## Temperature

July 2014 temperatures were narrowly above normal across the state, with 10 of the 19 First Order Stations reporting negative deviations, eight recording above normal, and Annette reporting as normal. Calculating the mean daily temperatures of the 19 stations (see Figure), 16 days of the month were below the 30-year normal. There was an eleven-day warm spell starting the 2<sup>nd</sup> followed by a twelve-day cold spell starting on the 17<sup>th</sup>. The peak deviation (4.7°F) occurred on the 5<sup>th</sup>. The monthly mean temperature of all First Order Stations was 55.7°F, just 0.2°F above the normal of 55.5°F. This is 1.7°F below the July of 2013 mean of 57.2°F. Cold Bay held the greatest positive deviation from normal for July at a significant 4.9°F above its long-term mean of 50.9°F. Stations following Cold Bay with positive deviations equal to or exceeding 2°F: St Paul (3.1°F), Homer (2.8°F) and Kodiak (2.5°F). All stations with positive deviations were southern coastal stations. The only two stations with a negative deviation exceeding 2°F from normal were Bettles (-3.7°F) and Barrow (-2.9°F).

The warmest temperature reported for the First Order Stations was 87°F at Fairbanks on the 6<sup>th</sup>. The coldest temperature was 29°F at Barrow on the 15<sup>th</sup>. Barrow also reported the lowest July mean temperature at 38.0°F, while Fairbanks reported the highest mean temperature for the month at 61.0°F.

Station	Temperature		
	Observed (°F)	Normal (°F)	Delta (°F)
Anchorage	59.8	58.8	1.0
Annette	58.6	58.6	0.0
Barrow	38.0	40.9	-2.9
Bethel	56.0	56.1	-0.1
Bettles	56.0	59.7	-3.7
Cold Bay	55.8	50.9	4.9

Delta Junction	58.4	60.2	-1.8
Fairbanks	61.0	62.5	-1.5
Gulkana	57.4	57.6	-0.2
Homer	57.4	54.6	2.8
Juneau	57.4	56.9	0.5
King Salmon	57.0	55.5	1.5
Kodiak	57.0	54.5	2.5
Kotzebue	53.6	54.6	-1.0
McGrath	59.1	60.0	-0.9
Nome	51.1	52.2	-1.1
St. Paul Island	50.3	47.2	3.1
Talkeetna	59.4	60.1	-0.7
Yakutat	54.7	54.3	0.4



*Daily mean temperature deviation from the normal temperature for the mean of the first order stations for July 2014.*

A fair number of record temperature events were reported for July with the high events outnumbering low events more than four to one. King Salmon had both a new high and a new low on the 30<sup>th</sup>, not a common event. Cold Bay had four high events, St Paul three high events, and King Salmon had two. All three stations are around the Bristol Bay area.

Date	Temperature Records				
	Station	Element	New Record	Old Record	Year of old Record
07/05/14	Cold Bay	High Temperature	65	63	1991
07/05/14	Homer	High Temperature	74	71	1949
07/05/14	McGrath	High Temperature	85	85	1997
07/06/14	Cold Bay	High Temperature	67	63	1996

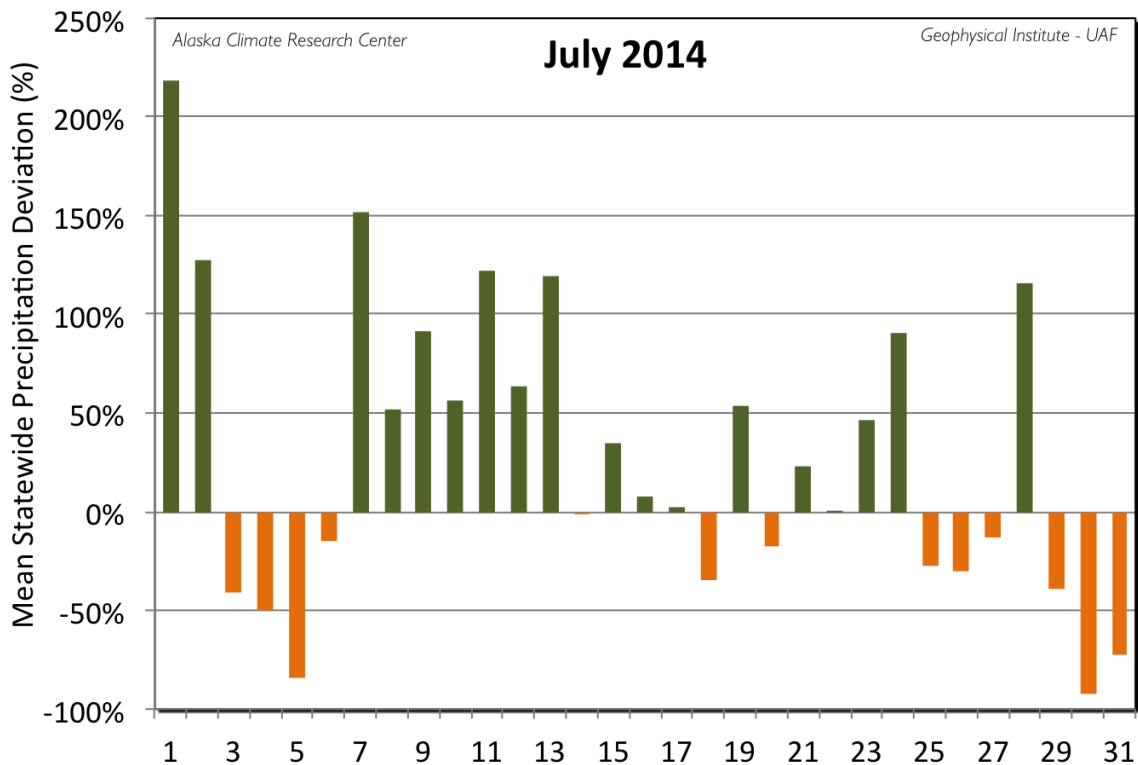
07/06/14	Kotzebue	High Temperature	77	76	1987
07/07/14	Kotzebue	High Temperature	80	77	2009
07/07/14	Nome	High Temperature	84	80	1968
07/09/14	St. Paul	High Temperature	56	56	2004
07/13/14	St. Paul	High Temperature	60	60	2005
07/14/14	Annette	High Temperature	83	78	1958
07/14/14	Hollis	High Temperature	83	80	1956
07/15/14	Cold Bay	High Temperature	66	64	2001
07/15/14	Hollis	High Temperature	82	78	1961
07/17/14	Cold Bay	High Temperature	65	65	1979
07/17/14	King Salmon	Low Temperature	36	37	2010
07/25/14	Bethel	Low Temperature	40	40	1969
07/26/14	McGrath	Low Temperature	42	42	1972
07/27/14	McGrath	Low Temperature	36	40	1986
07/30/14	Bethel	High Temperature	78	76	1965
07/30/14	Cold Bay	High Temperature	70	65	1978
07/30/14	King Salmon	High Temperature	80	79	2002
07/30/14	King Salmon	Low Temperature	41	42	1951
07/31/14	St. Paul	High Temperature	63	63	1969

**Precipitation**

The overall precipitation calculated as the mean of the deviations in percentage of the 19 stations was just 24% above normal. Only six of the First Order Stations and twelve days of the month reported below normal values. The greatest daily deviation of 218% occurred on the 1<sup>st</sup>, a day with heavy precipitation in the Interior. On a monthly basis, Fairbanks had the greatest positive deviation from normal, with a total of 5.78", or 268% of the expected amount of 2.16", which represents the second highest July total on record after 2003 with 5.96". This follows a record wet June in Fairbanks. Following Fairbanks, with values at or above 150% of normal, were Bettles (212%), Juneau (180%), Kotzebue (175%), Anchorage (177%), and Annette (163%). Leading the stations with lower than normal precipitation totals were Kodiak and Talkeetna with 52%, and St. Paul with 58% of normal.

Station	Precipitation				
	Observed (in)	Normal (in)	Delta (in)	Delta (%)	(%)
Anchorage	3.23	1.83	1.40	77%	177%
Annette	7.60	4.65	2.95	63%	163%
Barrow	1.01	0.98	0.03	3%	103%
Bethel	2.73	2.36	0.37	16%	116%
Bettles	5.00	2.36	2.64	112%	212%
Cold Bay	2.13	2.48	-0.35	-14%	86%
Delta Junction	1.66	2.68	-1.02	-38%	62%
Fairbanks	5.78	2.16	3.62	168%	268%
Gulkana	2.26	1.81	0.45	25%	125%
Homer	1.65	1.55	0.10	6%	106%
Juneau	8.26	4.60	3.66	80%	180%
King Salmon	2.38	2.30	0.08	3%	103%
Kodiak	2.58	4.93	-2.35	-48%	52%
Kotzebue	2.59	1.45	1.14	79%	179%
McGrath	2.58	2.38	0.20	8%	108%

Nome	2.62	2.11	0.51	24%	124%
St. Paul Island	1.07	1.85	-0.78	-42%	58%
Talkeetna	1.76	3.39	-1.63	-48%	52%
Yakutat	6.42	7.88	-1.46	-19%	81%

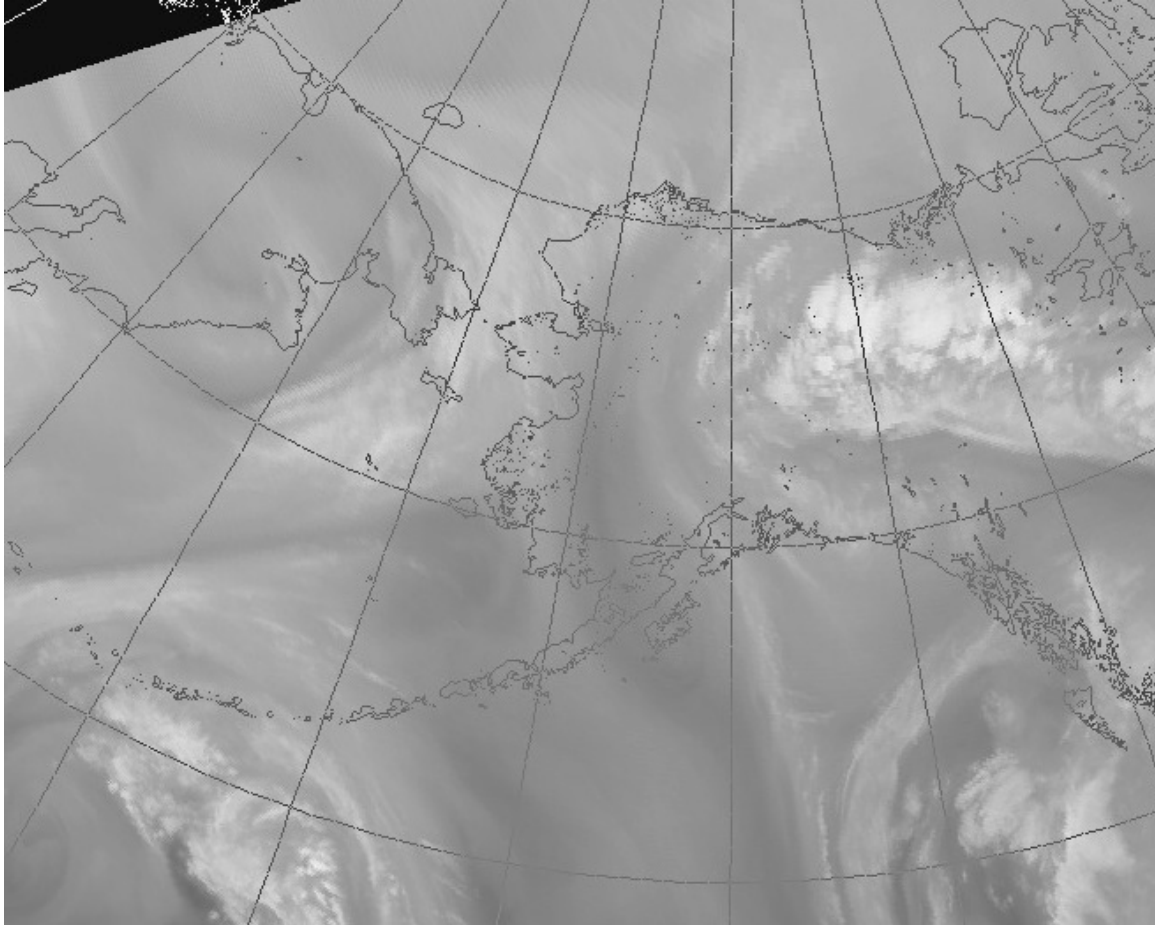


*Daily mean precipitation deviation from the normal for the first order stations for July 2014.*

The maximum monthly precipitation total reported for the First Order Stations was 8.26" at Juneau, while Fairbanks reported the highest daily total of 1.92" on the 1<sup>st</sup>, a new daily record. The highest one-day snowfall occurred at Barrow on the 24<sup>th</sup> with 0.70", a new daily record, and Barrow also reported the highest monthly snowfall of 0.9".

Despite the higher than normal precipitation reported for July for most stations, there were a limited number of daily precipitation records, and most were set during the first half of the month. Skagway Airport broke a record set back in 1904. It was the second wettest July on record for Fairbanks, just behind the 5.96" from 2003, and following a record wet June. The precipitation total for Fairbanks from June 1<sup>st</sup> to July 31<sup>st</sup> was 9.34", a record for the two months, topping the 1949 total of 7.02". Juneau also had the second wettest July with 8.26", quite a bit short of the 10.36" from 1997, and also following the wettest June on record. Similar to Fairbanks, the total for Juneau for June 1<sup>st</sup> to July 31<sup>st</sup> was 15.65", breaking the total for the same period of 13.88" from 1997. Juneau only had five day in July with no precipitation. Barrow set a new daily snowfall record for the 24<sup>th</sup>.

Date	Precipitation Records				
	Station	Element	New Record	Old Record	Year of old Record
07/01/14	Fairbanks	Precipitation	1.92	0.65	1935
07/04/14	Haines Airport	Precipitation	1.18	0.45	1981
07/04/14	Skagway Airport	Precipitation	0.95	0.36	1904
07/05/14	Hollis	Precipitation	0.58	0.55	1950
07/09/14	Bettles	Precipitation	0.90	0.72	2013
07/12/14	Annex Creek	Precipitation	1.81	1.00	2007
07/12/14	Auke Bay	Precipitation	2.09	1.38	1997
07/12/14	Cold Bay	Precipitation	0.83	0.39	1952
07/13/14	Bethel	Precipitation	0.48	0.41	1982
07/14/14	Bettles	Precipitation	0.38	0.29	1989
07/24/14	Barrow	Snowfall	0.70	0.60	1945
07/25/14	Auke Bay	Precipitation	1.55	0.99	1995
07/28/14	McGrath	Precipitation	0.48	0.45	1946



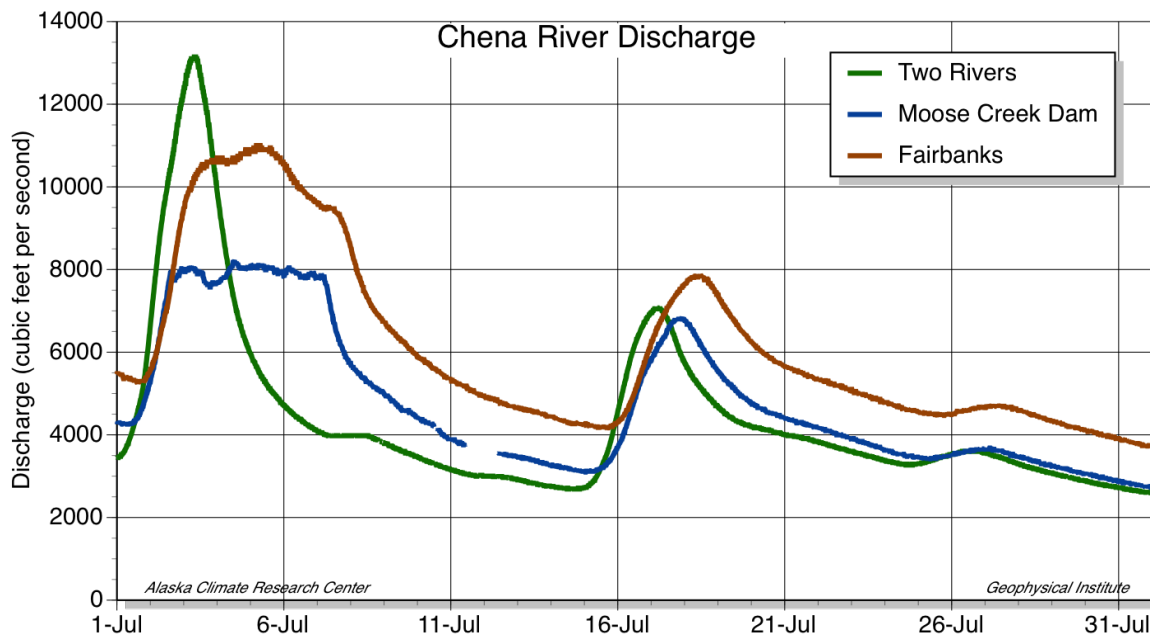
*This water vapor satellite image from the National Weather Service shows weather pattern affecting the Interior portions of Alaska on July 1<sup>st</sup>, 2014. The storm resulted in heavy rainfall across the region.*

## **Newsworthy Events**

The month started off with a record rainfall in Fairbanks on the 1<sup>st</sup>, and heavy rain across the Interior for the 1<sup>st</sup> and 2<sup>nd</sup>, resulting in the Moose Creek Dam being closed for the second time this summer (and only for the 22<sup>nd</sup> time in nearly 35 years) and the gates were not lifted until the 7<sup>th</sup> (Figure 4). Fairbanks received 3.38" in the two days, nearly a third of the normal annual total. Flood warnings and watches were issued across the region for the next couple days, some extending until the 7<sup>th</sup>. Flood warning was also issues for the Tiaya River near Skagway on the 4<sup>th</sup>. The 8<sup>th</sup> saw voluntary evacuation orders put in place for areas along the Matanuska River in Butte due to high water. A glacial lake outburst at the Mendenhall Lake near Juneau on the 10<sup>th</sup> resulted in flood warnings. Also on the 10<sup>th</sup> a major bridge in Fairbanks that crosses the Chena River was closed to fix a sink hole, one of several that have appeared in the area over the previous few weeks, including one that nearly swallowed a riding lawn mover at the University of Alaska campus. Even as the Interior dried out from the rain, the extreme high water table created

numerous problems, such as flooding many septic tanks, across the Fairbanks area for the rest of the month.

A high wind advisory was issued for the Middle Tanana Valley on the 14<sup>th</sup>. The airport at Fairbanks recorded a peak wind speed of 38 mph. Power was lost for about 500 households in the Ester area, and over 800 in the North Pole area. Not all power was restored until the next day. That storm also brought more unwanted rain across the region, including 0.30" at Fairbanks. The persistent high water on the Chena River resulted in the cancelation of the annual Red Green Regatta in Fairbanks on the 20<sup>th</sup>. Clearing skies resulted in a warning for cool temperatures around the Fairbanks area also on the 20<sup>th</sup>. A low-pressure system from the Arctic coast moved through the middle of Alaska on the 24<sup>th</sup> bringing heavy rain to the Alaska Range, and snowfall to areas of the southeastern Brooks Range.



Discharge rates for the Chena River at three locations for July 2014. The effect of closing the Moose Creek Dam on the 2<sup>nd</sup> can be seen. Data courtesy of the USGS (<http://waterdata.usgs.gov/ak/nwis/rt>).

*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 19 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 until end of August 2011.*