

# *Alaska Statewide Climate Summary*

August 2012

## Temperature

Below normal temperatures settled across most of Alaska for August. The most pronounced exception was Barrow with an astonishing positive deviation of 6.3°F. Arctic Alaska has shown the greatest warming over the last decades and this finding is in agreement with this trend. The other stations with positive deviations were: Big Delta (1.0°F), Fairbanks (0.2°F) and Valdez (0.2°F). All other sixteen first order stations exhibited below normal values. In this sense August mirrored June 2012. Generally, there was a gradient of the temperature deviations, from strong positive values in northern Alaska, to negative values in the south. The stations with the greatest negative deviations were: Homer (-2.2°F), Talkeetna (-1.9°F), Gulkana (-1.9°F), King Salmon (-1.6°F), and Kodiak (-1.5°F). A mean deviation of all twenty stations from the long-term mean could be calculated at -0.6°F, and this is the fourth month in a row with a mean below normal. See the table below for more details.

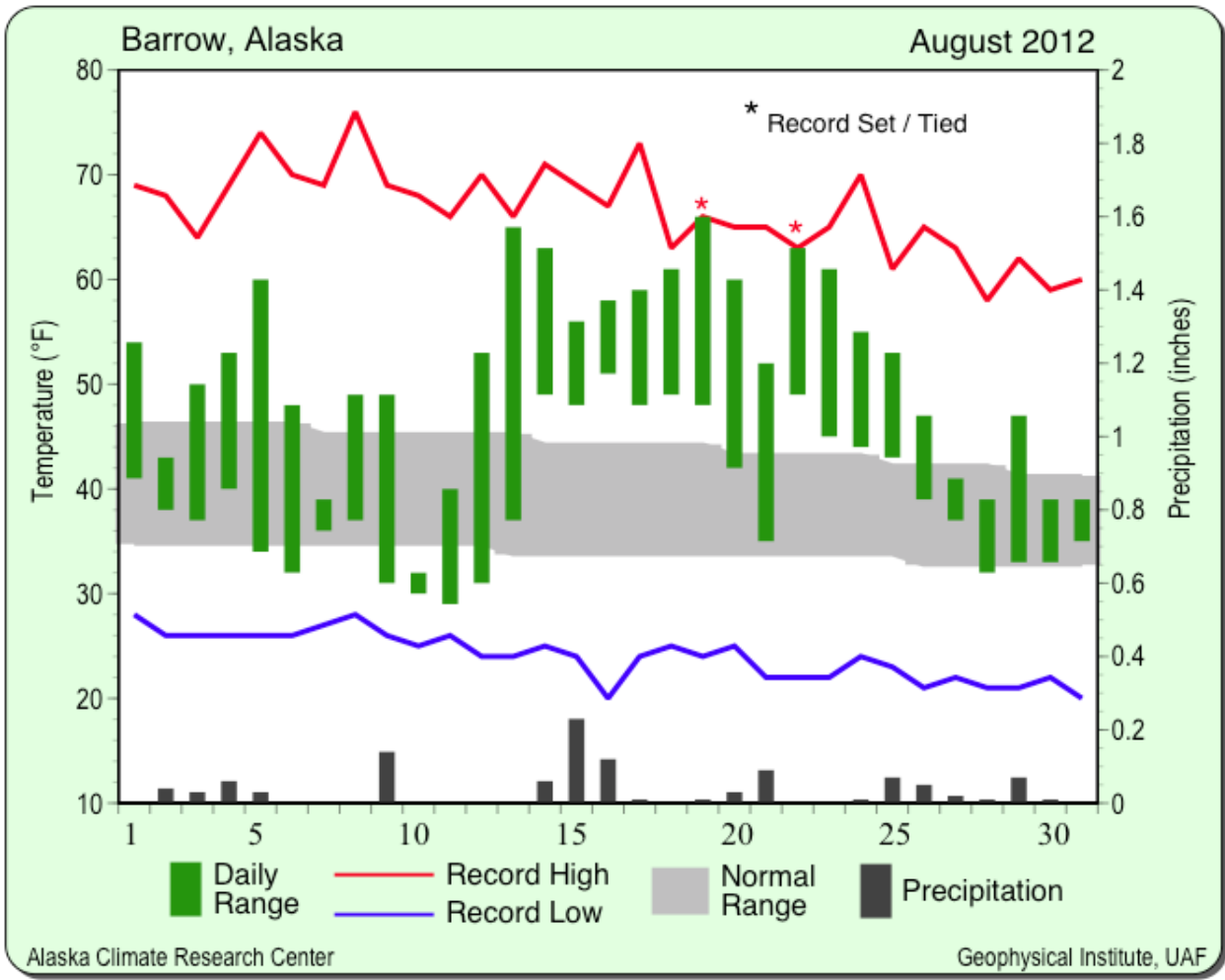
Station	Temperature		
	Observed (°F)	Normal (°F)	Delta (°F)
Anchorage	55.9	56.7	-0.8
Annette	57.7	58.9	-1.2
Barrow	45.3	39.0	6.3
Bethel	52.3	53.5	-1.2
Bettles	52.2	52.5	-0.3
Big Delta	56.1	54.8	1.3
Cold Bay	51.2	52.1	-0.9
Fairbanks	56.3	56.1	0.2
Gulkana	51.6	53.5	-1.9

Homer	51.7	53.9	-2.2
Juneau	54.6	55.9	-1.3
King Salmon	53.0	54.6	-1.6
Kodiak	53.7	55.2	-1.5
Kotzebue	51.1	51.7	-0.6
McGrath	54.4	54.6	-0.2
Nome	49.2	50.1	-0.9
St. Paul Island	47.6	48.8	-1.2
Talkeetna	54.8	56.7	-1.9
Valdez	53.9	53.7	0.2
Yakutat	52.5	53.8	-1.3

Temperature records were a mix of both high and low events, scattered along the coast from Barrow to Valdez. Valdez had a record low on the 22<sup>nd</sup> and a record high on the 29<sup>th</sup>. Barrow set two new daily high temperatures, and the old record on the 19<sup>th</sup> was originally set way back in 1923, and then tied in 1954. In another indication of the extreme warmth in Barrow for August 2012, six new daily high minimum temperature records were set between the 14<sup>th</sup> and 22<sup>nd</sup> (see the included figure).

Date	Temperature Records				
	Station	Element	New Record	Old Record	Year of old Record
08/03/12	Cold Bay	Low Temperature	33	39	1975
08/13/12	St. Paul	High Temperature	64	57	1989
08/14/12	St. Paul	High Temperature	63	59	2005
08/18/12	Kodiak	Low Temperature	41	42	1985

08/19/12	Barrow	High Temperature	66	63	1954
08/22/12	Valdez	Low Temperature	42	42	2005
08/22/12	Barrow	High Temperature	63	63	1972
08/24/12	Cold Bay	Low Temperature	38	39	1988
08/29/12	Valdez	High Temperature	69	69	1977



Daily temperature ranges and precipitation for Barrow for August 2012. Note the two record high temperature events. In addition, notice the very warm daily low temperatures values starting on the 14<sup>th</sup>. A noteworthy total of six new high minimum records were set between the 14<sup>th</sup> and 22<sup>nd</sup> of the month (not marked).

## Precipitation

Like temperature, precipitation was mixed with six of the first order stations reporting above normal totals, and the rest reporting below normal totals. The greatest positive deviations of normal, expressed in percentages, were found along the northern, northwestern parts of Alaska, and at Juneau: Kotzebue (100%), Nome (66%), and Juneau (32%). On the other side of the spectrum were the below normal stations of: Yakutat, with only 50% of the expected value, Gulkana (53%), Cold Bay (56%) and Annette (59%). With the preponderance of stations reporting below average precipitation, it comes as no surprise the mean precipitation deviation for all stations is 7% below normal. Barrow was the only first order station to register snowfall in July with just trace amounts measured on six days, not reaching the normal total for the month of 0.9", an expected result given the extremely warm month experienced there. As with the temperature, the precipitation deviations for the twenty first order stations are given in the table below:

Station	Precipitation				
	Observed (in)	Normal (in)	Delta (in)	(%)	Delta (%)
Anchorage	2.05	3.25	-1.20	63%	-37%
Annette	4.09	6.96	-2.87	59%	-41%
Barrow	1.09	1.05	0.04	104%	4%
Bethel	3.09	3.25	-0.16	95%	-5%
Bettles	3.12	2.64	0.48	118%	18%
Big Delta	1.05	1.89	-0.84	56%	-44%
Cold Bay	2.06	3.68	-1.62	56%	-44%
Fairbanks	1.45	1.88	-0.43	77%	-23%
Gulkana	0.95	1.80	-0.85	53%	-47%
Homer	1.89	2.34	-0.45	81%	-19%
Juneau	7.59	5.73	1.86	132%	32%
King Salmon	2.64	2.95	-0.31	89%	-11%

Kodiak	3.18	4.56	-1.38	70%	-30%
Kotzebue	4.36	2.18	2.18	200%	100%
McGrath	3.12	2.80	0.32	111%	11%
Nome	5.35	3.22	2.13	166%	66%
St. Paul Island	2.95	3.07	-0.12	96%	-4%
Talkeetna	4.32	5.11	-0.79	85%	-15%
Valdez	5.64	7.30	-1.66	77%	-23%
Yakutat	7.02	14.07	-7.05	50%	-50%

There were a limited number precipitation records for August, backing up the light rainfall experienced for most stations. The month started off with a number of events set in the Southeast on the 8<sup>th</sup> as a cyclonic system moved across the region. Most of the rest of the events were located in the western part of the state around the Bering Sea and Bering Strait areas, with the exception of Bettles on the 30<sup>th</sup>. The two record events in Kotzebue helped drive its twice-normal precipitation for August.

Date	Precipitation Records				
	Station	Element	New Record	Old Record	Year of old Record
08/08/12	Juneau	Precipitation	1.21	1.18	2002
08/08/12	Petersburg	Precipitation	1.42	1.36	2002
08/08/12	Gustavus	Precipitation	0.92	0.43	1988
08/19/16	Nome	Precipitation	1.06	0.95	1973
08/21/12	Kotzebue	Precipitation	0.95	0.90	1955
08/28/12	St. Paul	Precipitation	0.99	0.56	1981

08/28/12	Juneau	Precipitation	1.28	0.76	1988
08/30/12	Bettles	Precipitation	0.75	0.70	1988
08/31/12	Kotzebue	Precipitation	0.41	0.40	1964

The month started off with a travel advisory being issued on the 7<sup>th</sup> for the Dalton Highway as an early season snowfall of four to five inches in Atigun Pass hampered travel. Flood watches were issued in mid month for northwest Alaska as a once in 100-year rainfall event struck the region. Gauges in the region were recording four to six inches total of precipitation over several days starting on the 13<sup>th</sup>; when an unusual low-pressure front stalled over the Chukchi Sea and poured rain into the region for most of a week. Kivalina bore the brunt of the storm as flooding knocked out the water supply, and then spread waste as the flooding hit the community landfill. The lack of water delayed the opening of school.

Also at the beginning of the month it looked like the fire season was all but ended, with a very small area consumed of just over 200,000 acres due to low lightning strike counts and persistently cool weather. Lightning strike count was lowest since 2003. However, nice weather in the Interior starting about the 10<sup>th</sup> encouraged the Dry Creek fire (ignited on June 23<sup>rd</sup> by a lightning strike and located eighteen miles south of North Pole) to spread and bring smoke to the Fairbanks area on the 20<sup>th</sup> and for the next several days. Air quality alerts were in place for most of the week. A steady rain over the weekend of the 25<sup>th</sup> and 26<sup>th</sup> dampened the fire. The rains also generated flood advisory for small streams near Denali National Park. By the end of August the Dry Creek fire was in the process of burning itself out.

*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.*