

## November 2016

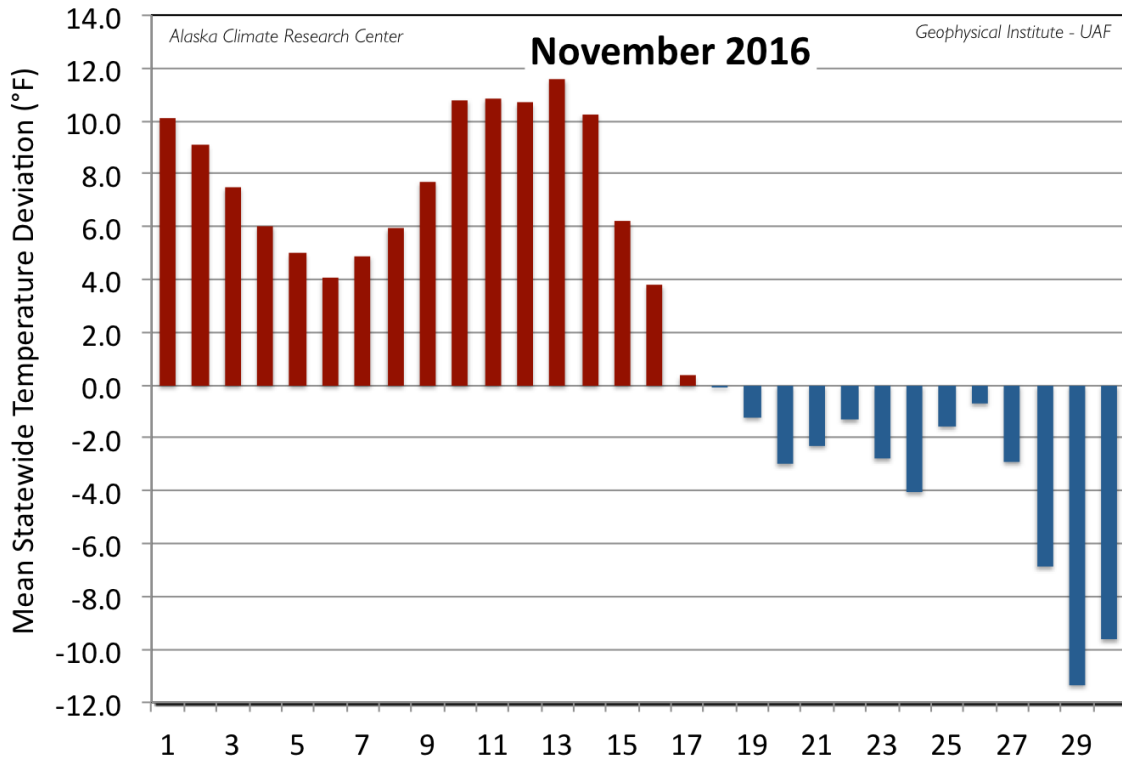
### Temperature

November 2016 continues the trend of above normal mean monthly statewide temperatures, with a cumulative fourteen months in a row. The monthly mean temperature of all First Order Stations was 21.5°F, 2.3°F above the normal of 19.2°F. This is 2.1°F below the November 2015 mean of 23.6°F. Calculating the mean daily temperatures of the First Order Stations, 17 days of the month were above the 30-year normal, with thirteen days below normal. The above normal temperatures started the month, and below normal temperatures dominated the end of the month, with the transition occurring between the 17<sup>th</sup> and 18<sup>th</sup> (see Figure). The peak positive deviation for the month occurred on the 13<sup>th</sup> at 11.6°F. The greatest negative deviation occurred on the 29<sup>th</sup> with -11.3°F. Monthly mean temperatures (see table) were above normal for 16 of the 19 First Order Stations. The only stations with a below normal mean monthly temperature were Bethel with -3.9°F below its normal of 17.4°F, McGrath (-2.1°F) and Nome (-1.0°F). Note that these stations are located in the western portion of the State. Like October, Barrow held the spot with the greatest positive deviation with an impressive of 12.6°F above its normal of 0.7°F. Annette had the next greatest positive deviation with 5.1°F.

Station	Temperature		
	Observed (°F)	Normal (°F)	Delta (°F)
Anchorage	26.1	22.2	3.9
Annette	45.1	40.0	5.1
Barrow	13.3	0.7	12.6
Bethel	13.5	17.4	-3.9
Bettles	-0.2	-1.0	0.8
Cold Bay	35.8	34.5	1.3
Delta Junction	9.4	6.2	3.2
Fairbanks	3.7	2.6	1.1
Gulkana	5.9	5.8	0.1

Homer	<b>32.5</b>	<b>29.5</b>	<b>3.0</b>
Juneau	<b>37.0</b>	<b>33.4</b>	<b>3.6</b>
King Salmon	<b>23.0</b>	<b>22.9</b>	<b>0.1</b>
Kodiak	<b>37.2</b>	<b>33.9</b>	<b>3.3</b>
Kotzebue	<b>11.8</b>	<b>9.1</b>	<b>2.7</b>
McGrath	<b>3.4</b>	<b>5.5</b>	<b>-2.1</b>
Nome	<b>15.9</b>	<b>16.9</b>	<b>-1.0</b>
St. Paul Island	<b>34.0</b>	<b>33.0</b>	<b>1.0</b>
Talkeetna	<b>23.4</b>	<b>19.5</b>	<b>3.9</b>
Yakutat	<b>36.9</b>	<b>32.3</b>	<b>4.6</b>

The highest daily maximum temperature of the First Order Stations for November was 62°F reported at Annette on the 10<sup>th</sup>. Annette also held the spot for the highest mean temperature for the month at 45.1°F. The lowest temperature of -44°F was observed at Bettles on the 30<sup>th</sup> and Bettles also reported the lowest November mean monthly temperature with a value of -0.2°F.



*Daily mean temperature deviation from the normal temperature for the mean of the First Order Stations for November 2016.*

There were only a limited number of new daily temperature record events in November. Kotzebue set a new daily high of 38°F on the 1<sup>st</sup>, breaking the 2002 record of 36°F. At the other end of the state, at Annette on the 9<sup>th</sup> the high of 60°F broke the 58°F from 1997. Also on the 9<sup>th</sup>, Juneau set a new high with 53°F, 1°F warmer than the 1997 record. Then the next day Annette set another record with 62°F topping the old record of 59°F also from 1997.

The colder temperatures across the State at the end of the month broke an unusual record. The high of -21°F at Fairbanks on the 28<sup>th</sup> ended a record 658 consecutive days where the daily high was above -10°F. The previous record was 346 days that ended on November 17<sup>th</sup>, 2001. Similarly, the low of -31°F at Fairbanks also on the 28<sup>th</sup> ended a 624 day streak where the temperatures had been above -30°F. This is the second longest such streak, with the record being 642 days that ended on November 26<sup>th</sup>, 1977.

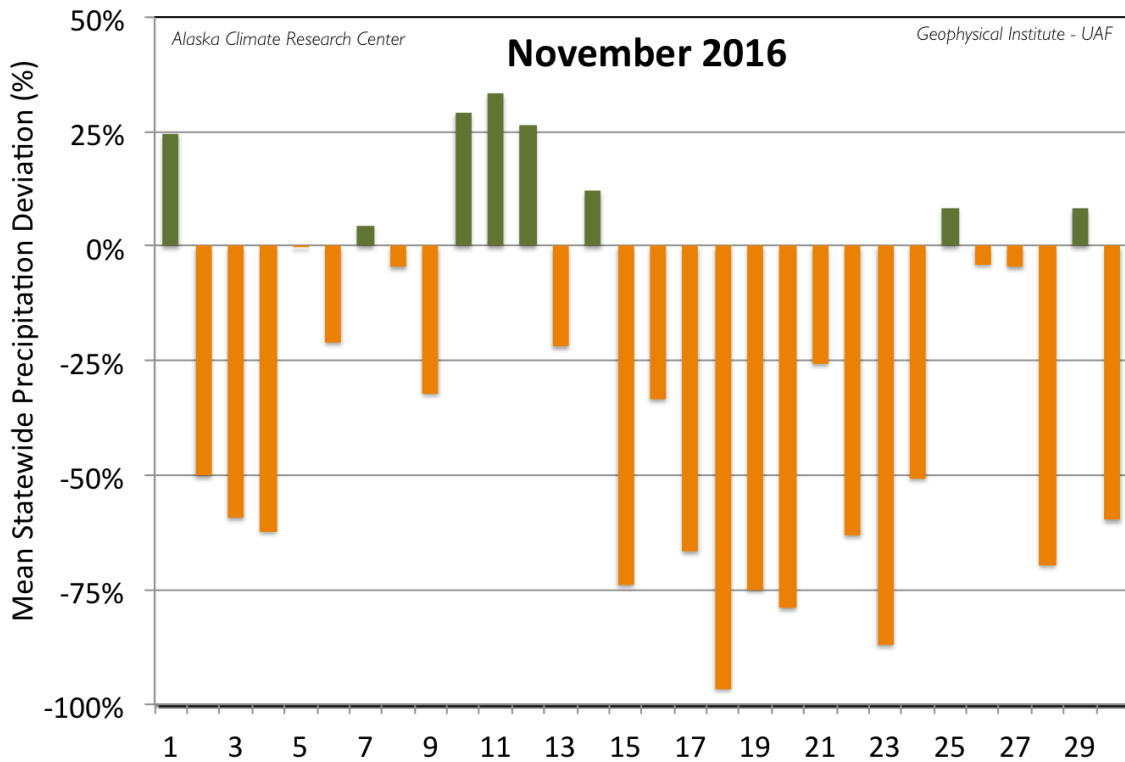
## Precipitation

Like October, November's precipitation was significantly below normal, with the overall precipitation calculated as 28% below the average; this calculation was based on the mean of the deviations in

percentage of the First Order Stations. Fourteen of the First Order Stations and 22 days of the month reported below normal values. This is quite a bit drier than November 2015, which reported a positive precipitation deviation of 75% above normal. The greatest daily deviation of 33% occurred on the 11<sup>th</sup>. The leading station with a greater than normal monthly precipitation amount was Barrow with 0.43", or 205% of normal. The relatively driest station was Delta Junction with just 11% of normal.

Station	Precipitation				
	Observed (in)	Normal (in)	Delta (in)	Delta (%)	(%)
Anchorage	0.25	1.16	-0.91	-78%	22%
Annette	11.61	12.29	-0.68	-6%	94%
Barrow	0.43	0.21	0.22	105%	205%
Bethel	0.47	1.60	-1.13	-71%	29%
Bettles	0.25	0.91	-0.66	-73%	27%
Cold Bay	3.78	4.98	-1.20	-24%	76%
Delta Junction	0.07	0.63	-0.56	-89%	11%
Fairbanks	0.29	0.67	-0.38	-57%	43%
Gulkana	0.61	0.72	-0.11	-15%	85%
Homer	3.49	2.79	0.70	25%	125%
Juneau	6.55	5.99	0.56	9%	109%
King Salmon	0.94	1.39	-0.45	-32%	68%
Kodiak	9.31	6.87	2.44	36%	136%
Kotzebue	0.10	0.77	-0.67	-87%	13%
McGrath	0.24	1.41	-1.17	-83%	17%
Nome	0.71	1.22	-0.51	-42%	58%

St. Paul Island	3.59	2.89	0.70	24%	124%
Talkeetna	0.28	1.63	-1.35	-83%	17%
Yakutat	14.34	14.45	-0.11	-1%	99%



*Daily mean precipitation deviation from the normal for the First Order Stations for November 2016.*

November's highest monthly precipitation total reported for a First Order Station was 14.34" at Yakutat, while Annette reported the highest daily total of 1.90" on the 7<sup>th</sup>. Nome set a daily precipitation record of 0.41" on the 16<sup>th</sup>, breaking the 1949 record of 0.33".

## Snowfall

Given the warmer than normal temperatures, and lighter than normal precipitation, its not surprising that snowfall was much lighter than normal with 14 of the 15 First Order Stations that measure snowfall. Based on the mean of the deviations from all 15 stations, the overall deviation from the normals was 62% below

the expected amount. Barrow had the only positive deviation at 9% above its expected amount with a total of 5.7". Nome reported the highest total monthly snowfall at 8.7", and also reported the highest one-day snowfall at 4.8" on the 16<sup>th</sup>, a new daily record, breaking the 1970 record of 4.6". The greatest snow depth was 7" and was reported at both Nome and Bettles around the middle of the month.

Station	Snowfall				
	Observed (in)	Normal (in)	Delta (in)	Delta (%)	(%)
Anchorage	1.3	13.1	-11.8	-90%	10%
Annette	0.0	3.5	-3.5	-100%	0%
Barrow	6.2	5.7	0.5	9%	109%
Bethel	3.6	12.9	-9.3	-72%	28%
Bettles	6.8	16.1	-9.3	-58%	42%
Cold Bay	0.3	10.2	-9.9	-97%	3%
Fairbanks	4.4	13.2	-8.8	-67%	33%
Juneau	2.7	13.1	-10.4	-79%	21%
King Salmon	4.6	6.9	-2.3	-33%	67%
Kodiak	1.8	6.4	-4.6	-72%	28%
Kotzebue	2.8	10.5	-7.7	-73%	27%
McGrath	6.7	19.3	-12.6	-65%	35%
Nome	8.5	12.1	-3.6	-30%	70%
St. Paul Island	6.6	8.3	-1.7	-20%	80%
Yakutat	4.3	18.2	-13.9	-76%	24%

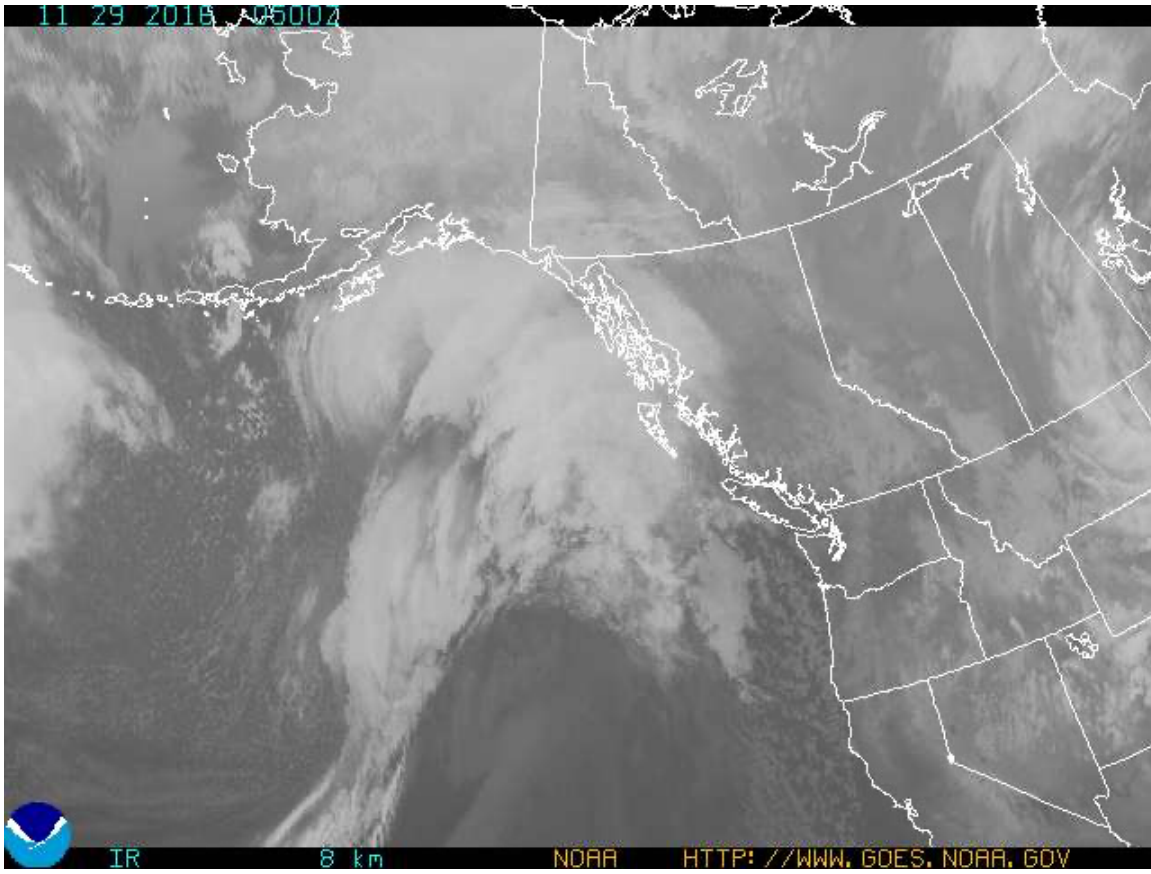
## **Newsworthy Events**

November started out with a storm impacting the Southeast on the 3<sup>rd</sup> with high winds reported around the southern panhandle. Gusts up to 62 mph were measured at Ketchikan, and 68 mph at Lincoln Island. Over 4" of snow fell at Haines Customs. Another storm impacted the southern panhandle area again on the 9<sup>th</sup> with considerable lightning reported. Wind gusts up to 60 mph were felt along the Turnagain Arm area on the 10<sup>th</sup>. Freezing rain and difficult driving conditions were observed in the Fairbanks area on the 10<sup>th</sup>, then again on the 13<sup>th</sup> and 14<sup>th</sup>. Icy roads in the Mat-Su area resulted in the closure of three schools in the Susitna Valley on the 14<sup>th</sup>. More thunderstorms in the Southeast on the 14<sup>th</sup> resulted in thunder, lightning and pea sized hail at Yakutat. Barrow experienced its last sunset on the 18<sup>th</sup>; the next sunrise will be January 22.

Hazardous driving conditions were reported along the Ellicott Highway on the 15<sup>th</sup>, then along the Seward highway on 17<sup>th</sup>, the Dalton Highway on the 21<sup>st</sup>, then again on the Dalton Highway on the 25<sup>th</sup>.

A strong low-pressure system occurred in the area of the Aleutian Islands and Western Alaska on the 25<sup>th</sup> and 26<sup>th</sup>. False Pass reported gusts up to 99 mph; 82 mph was reported at Unalaska, 80 mph at King Cove and 74 mph at Cold Bay. White Pass in the northern panhandle reported 10" of snow on the 26<sup>th</sup>.

Yet another storm headed into the Southeast on the 28<sup>th</sup> and 29<sup>th</sup>. Winds up to 106 mph were recorded at Lemon Creek near Juneau; Lincoln Island reported 78 mph, 72 mph at Hydaburg, 58 mph at Petersburg, 52 mph at Ketchikan, 47 mph at Craig, and 31 mph at Yakutat. Fourteen inches of snow fell at Haines Customs during the storm. Very difficult driving conditions were reported along the Haines Highway due to the heavy snow and high winds.



*This NWS infrared satellite image shows the weather pattern generating high winds and rain along the Southeast area of Alaska on the 29<sup>th</sup>.*

*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](mailto: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.*