

Alaska Statewide Climate Summary

November 2018

The following report provides an overview of the November 2018 weather. The report is based on preliminary data from selected weather stations throughout the state of Alaska. "Departure from normal" refers to the climatological average over the 1981-2010 period.

Temperature

November was unusually warm throughout the state and for the second month in a row, all our selected stations recorded monthly mean temperatures well above average. At 2.5°F above normal, St. Paul Island was the coldest station in relative terms. Of the 8 stations that recorded deviations of 10°F or more in October, only Bettles did so again in November. At 10.2°F above normal, Bettles topped the list of November temperature deviations. The highest temperature deviations were recorded at stations in the Interior and the Arctic. The southern coastal areas also experienced significantly warmer than average conditions but deviations were somewhat less extreme (Figure 1). Monthly temperature deviations for all stations are listed in Table 1.

Cold Bay set a new monthly temperature record for November. At 39.7°F, November 2018 was slightly warmer in Cold Bay than the previous November record of 38.9°F, which was set in 1985. The temperature time series for Cold Bay starts in 1950. Ketchikan, Kodiak and Nome recorded November temperatures in the top 5 for their respective time series and Anchorage, Bettles, Fairbanks, Homer, Juneau, King Salmon, Kotzebue, and Yakutat were in the top 10.

The unusually warm conditions are also reflected in a number of new daily temperature records listed in Table 2. All temperature records set in November were high records.

Figure 2 shows temperature deviations at all of the selected stations for each day of the month. Gulkana and Juneau experienced a cold period during the first week of November. At all other stations, colder than average days were a rare occurrence this month. Several stations recorded very high daily temperature deviations of over 20°F on multiple days.

Table 1: Mean monthly air temperature, normal (1981-2010) and departure for selected stations throughout the state, November 2018, preliminary values.

Station	Observed (°F)	Normal (°F)	Departure (°F)
Anchorage	30.1	22.2	7.9
Bethel	23.7	17.4	6.3
Bettles	9.2	-1.0	10.2
Cold Bay	39.7	34.5	5.1
Delta Junction	15.7	6.2	9.4
Fairbanks	11.7	2.6	9.1
Gulkana	12.2	5.8	6.0
Homer	35.8	29.5	6.3
Juneau	38.5	33.5	5.0
Ketchikan	44.6	38.4	6.2
King Salmon	32.6	22.9	9.7
Kodiak	39.4	33.9	5.5
Kotzebue	17.8	9.1	8.7
McGrath	14.4	5.6	8.8
Nome	24.9	16.9	8.0
St. Paul Island	35.5	33.0	2.5
Talkeetna	28.6	19.4	9.1
Utqiagvik	8.2	0.7	7.5
Yakutat	38.6	32.3	6.3

2018-11, Monthly Temperature Departure From Normal (1981-2010)

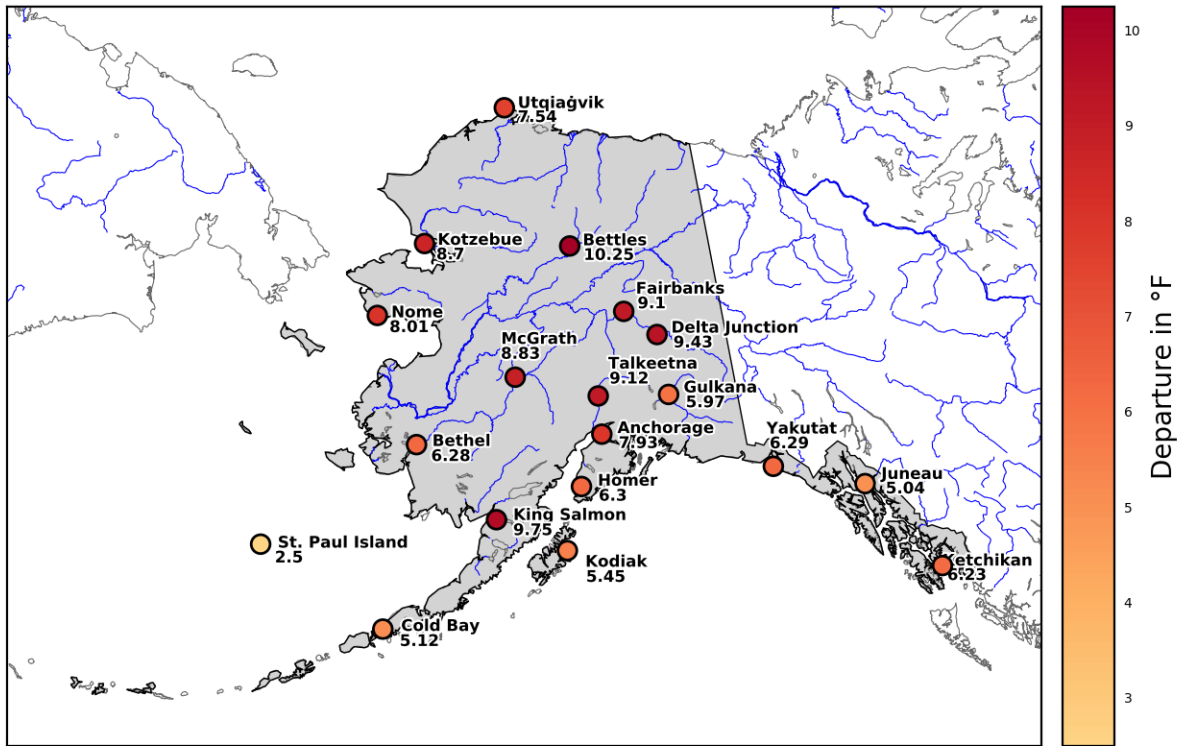


Figure 1: Monthly mean temperature departure from normal, November 2018.

Daily mean temperature, departure from normal (1981-2010), 2018-11

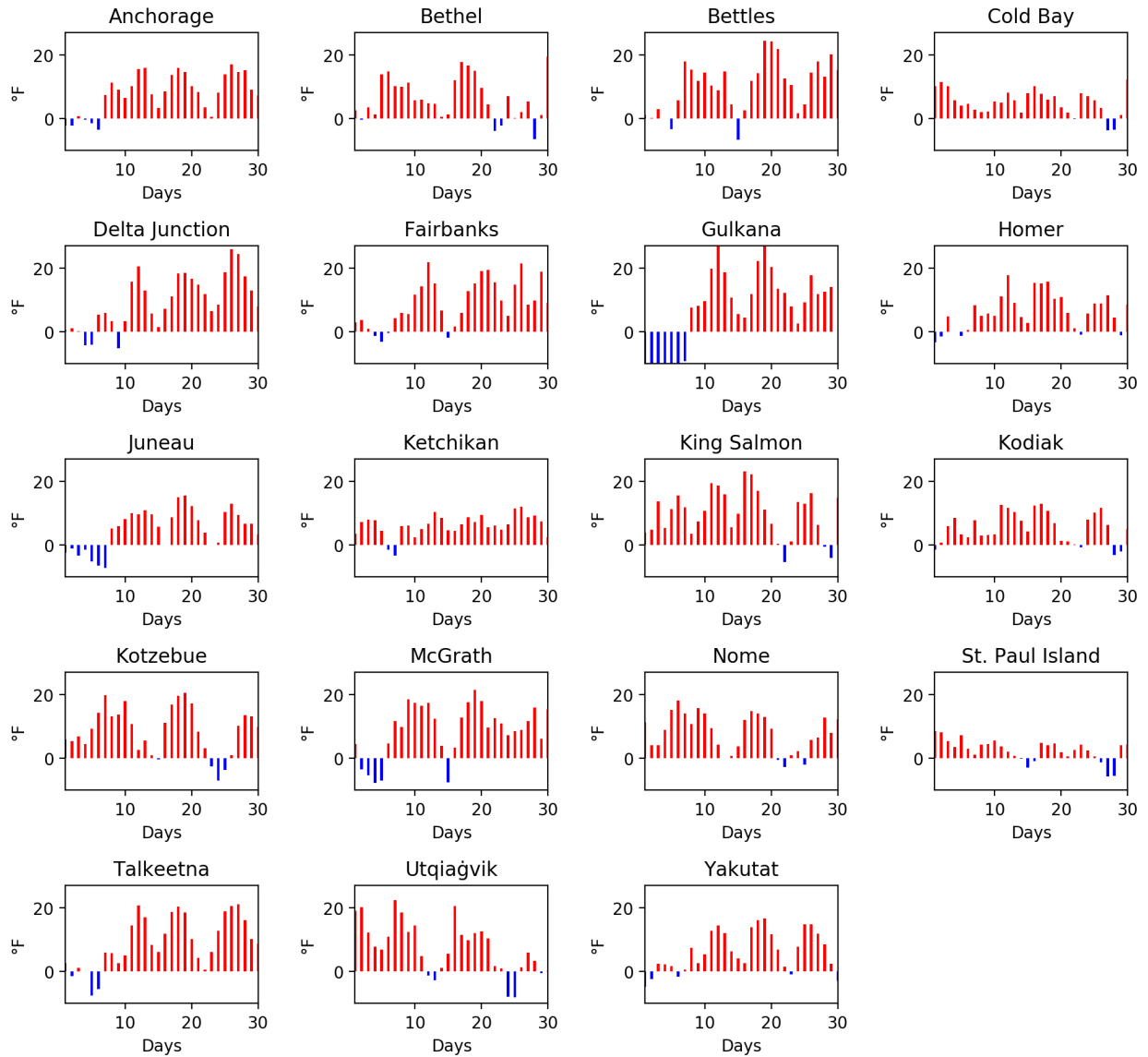


Figure 2: Daily mean temperature departures for each day in November 2018, at the selected stations.

Table 2: Daily temperature records, November 2018, since the beginning of the respective time series. avgt = daily mean temperature, mint = daily minimum temperature, maxt = daily maximum temperature.

Station	Date	Element	New Record	Year of old record	Old record
High records					
Cold Bay	2018/11/16	avgt	44.5	1970	44
Cold Bay	2018/11/16	mint	42	2014	40
Juneau	2018/11/18	avgt	47.5	2005	45.5
Juneau	2018/11/19	avgt	48	1943	43.5
Juneau	2018/11/20	avgt	44.5	1944	44
Juneau	2018/11/19	maxt	51	1943	49
Juneau	2018/11/18	mint	45	1936	42
Juneau	2018/11/19	mint	45	1959	39
King Salmon	2018/11/16	avgt	45.5	2014	45
King Salmon	2018/11/17	avgt	44.5	2014	41.5
King Salmon	2018/11/11	maxt	49	2014	48
King Salmon	2018/11/12	maxt	51	2014	50
King Salmon	2018/11/16	mint	42	2014	40
King Salmon	2018/11/17	mint	42	1968	38
Kodiak	2018/11/11	avgt	47	2014	46.5
Kodiak	2018/11/16	avgt	46	1957	43
Kodiak	2018/11/17	avgt	46.5	1990	45.5
Kodiak	2018/11/16	mint	45	1957	42
Kodiak	2018/11/17	mint	45	1978	40
St. Paul Island	2018/11/01	avgt	44	2002	43.5
St. Paul Island	2018/11/01	mint	43	2002	42
Talkeetna	2018/11/12	avgt	40.5	1976	38
Talkeetna	2018/11/18	avgt	38.5	2014	37
Talkeetna	2018/11/19	maxt	42	1943	40
Talkeetna	2018/11/12	mint	36	2004	33
Talkeetna	2018/11/18	mint	36	2005	33
Talkeetna	2018/11/27	mint	34	1931	33
Yakutat	2018/11/13	avgt	44.5	1976	43.5
Yakutat	2018/11/17	avgt	45.5	1936	45
Yakutat	2018/11/18	avgt	47.5	1917	45.5
Yakutat	2018/11/19	avgt	48	1917	45
Yakutat	2018/11/25	avgt	45.5	1936	43.5
Yakutat	2018/11/17	maxt	50	1936	49
Yakutat	2018/11/18	maxt	52	1936	49

Yakutat	2018/11/19	mint	46	1917	43
Yakutat	2018/11/25	mint	42	1947	41

Precipitation

November precipitation varied significantly between different locations throughout the state. At 198% of normal precipitation, Kodiak was wettest, relatively speaking, while Delta Junction was driest with only 11% of normal. In very general terms, coastal areas were on the wetter side this month, while stations in the Interior like Bettles and Delta Junction recorded low monthly precipitation. See Table 3, Figure 3.

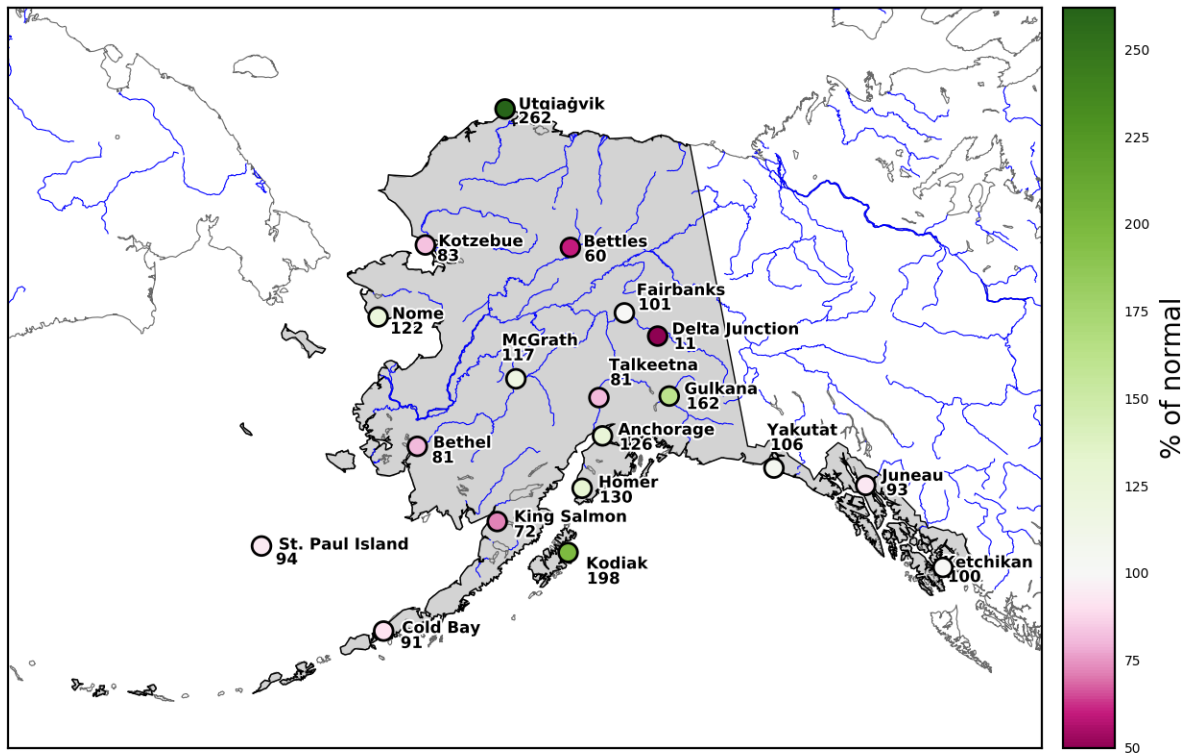
Figure 4 shows the monthly precipitation sums at each station in inches. It can be seen how strongly precipitation varies between stations not only during the past month but also in the climatological mean, due to the diverse climatological conditions that can be found in Alaska.

Table 3: Monthly precipitation sum, normal (1981-2010) and departure expressed as a percentage of the normal (1981-2010) for selected stations throughout the state, November 2018, preliminary values.

Station	Precipitation (in)	Normal (in)	% of normal
Anchorage	1.5	1.2	125.9
Bethel	1.3	1.6	81.2
Bettles	0.6	0.9	60.4
Cold Bay	4.5	5.0	91.2
Delta Junction	0.1	0.6	11.1
Fairbanks	0.7	0.7	101.5
Gulkana	1.2	0.7	162.5
Homer	3.6	2.8	130.5
Juneau	5.6	6.0	93.3
Ketchikan	16.7	16.6	100.4
King Salmon	1.0	1.4	71.9
Kodiak	13.6	6.9	197.8
Kotzebue	0.6	0.8	83.1
McGrath	1.7	1.4	117.0
Nome	1.5	1.2	122.1
St. Paul Island	2.7	2.9	94.5
Talkeetna	1.3	1.6	81.0
Utqiagvik	0.6	0.2	261.9
Yakutat	15.3	14.5	105.6

Figure 3: Monthly precipitation sums expressed as percent of normal (1981-2010), November 2018.

2018-11, Monthly Precipitation, % of Normal (1981-2010)



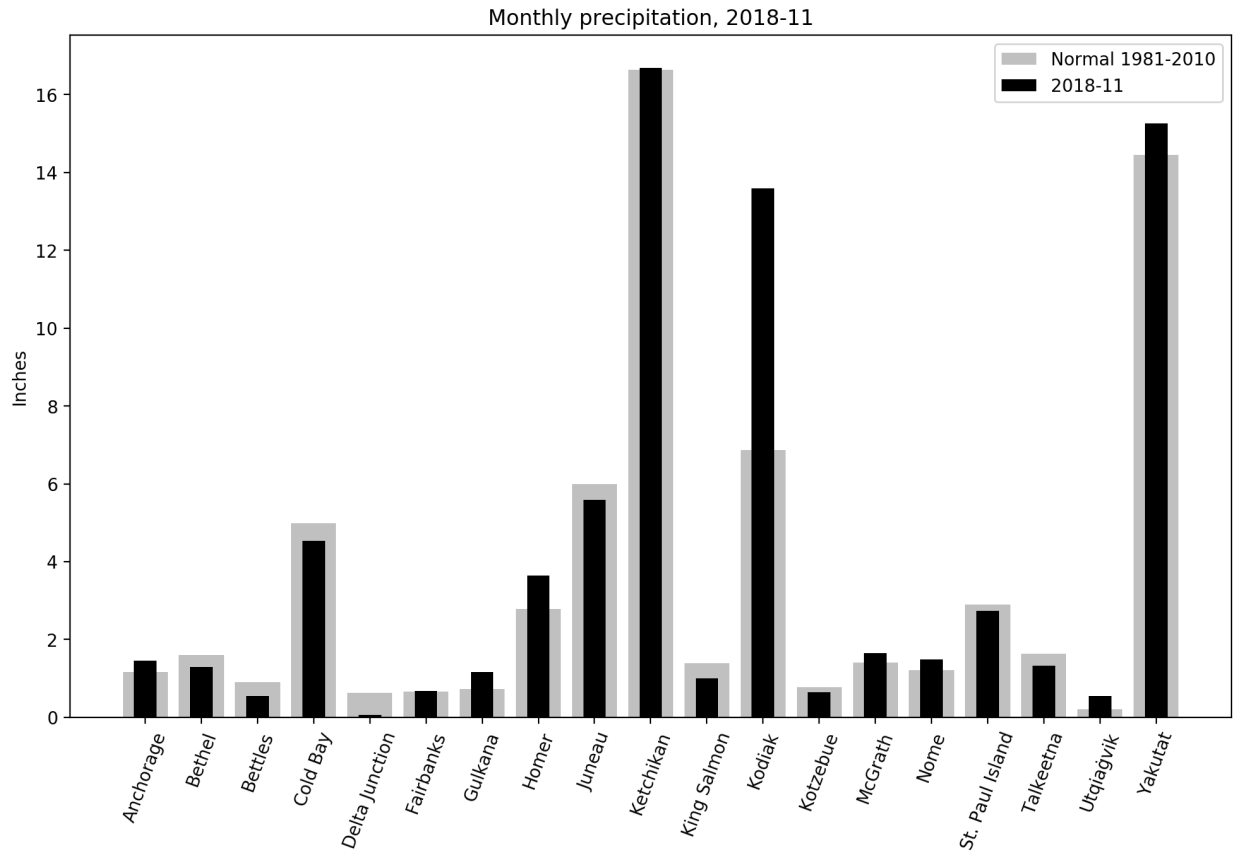


Figure 4: Monthly precipitation sums for November 2018 at the selected stations compared to the normal (1981-2010), in inches.

Snow

Utqiagvik recorded above average November snowfall (144%) and Nome and Fairbanks were almost exactly on target with 99 and 102% of normal. The remaining stations received less November snow than normal, ranging from 88% in McGrath to 0 in Yakutat and Kodiak, which typically see November snow fall sums of 18 and 6 inches, respectively. Both Yakutat and Kodiak recorded above average precipitation despite the low values for snowfall. Like in October, this suggests that precipitation that would normally be expected to fall as snow fell as rain due to the unusually high temperatures.

Table 4: Monthly snowfall sum, normal (1981-2010) and departure expressed as a percentage of the normal (1981-2010) for the selected stations that measure snowfall, November 2018, preliminary values.

Station	Precipitation (in)	Normal (in)	% of normal
Anchorage	4.8	13.1	36.6
Bethel	0.3	12.9	2.3
Bettles	5.3	16.1	32.9

Cold Bay	3.2	10.2	31.4
Fairbanks	13.5	13.2	102.3
Juneau	3.2	13.1	24.4
King Salmon	1.5	6.9	21.7
Kodiak	0.0	6.4	0.0
Kotzebue	5.9	10.5	56.2
McGrath	16.9	19.3	87.6
Nome	12.0	12.1	99.2
St. Paul Island	2.6	8.3	31.3
Utqiagvik	8.2	5.7	143.9
Yakutat	0.0	18.2	0.0

Newsworthy Events

On November 30th, a magnitude 7 earthquake struck Alaska. The epicenter was about 7 miles from Anchorage and slope failures caused substantial infrastructure damage, primarily to roads such as the Glenn Highway. No loss of life has been reported. This was the most significant quake since the 9.2 magnitude “Good Friday” earthquake in 1964, which killed more than 100 people. Damage from the November 30th quake was comparatively limited, which is being attributed to the deep epicenter (27 miles below the surface) and strict building codes, which were put in place after the 1964 disaster. It is interesting to note that earthquakes can affect weather observations and data quality control needs to be performed on station data accordingly. Figure 5 shows the data recorded at a precipitation gauge in Kenai during the earthquake. The earthquake signal can be seen clearly as an anomalous peak shortly before 9am on November 30th.

November average sea ice extent in the Bering Sea was the lowest in the satellite era. Overall Arctic sea ice extent is currently slightly above the extent at this time of year in 2016 and 2017, although still well below the 1981-2010 normal.

Ash emissions from Veniaminof volcano prompted aviation warnings and air quality advisories on November 21 for the Aleutians. According to the USGS, the ash plume rose up to 15 000 feet and spread about 150 miles to the Southeast.

Drought conditions persist in the Southeast. While precipitation has been around normal during October and November, this has not been enough to compensate for the dry previous months and conditions in the southern part of the panhandle are still classified as D2/severe drought according to the US Drought Monitor (<https://droughtmonitor.unl.edu>).

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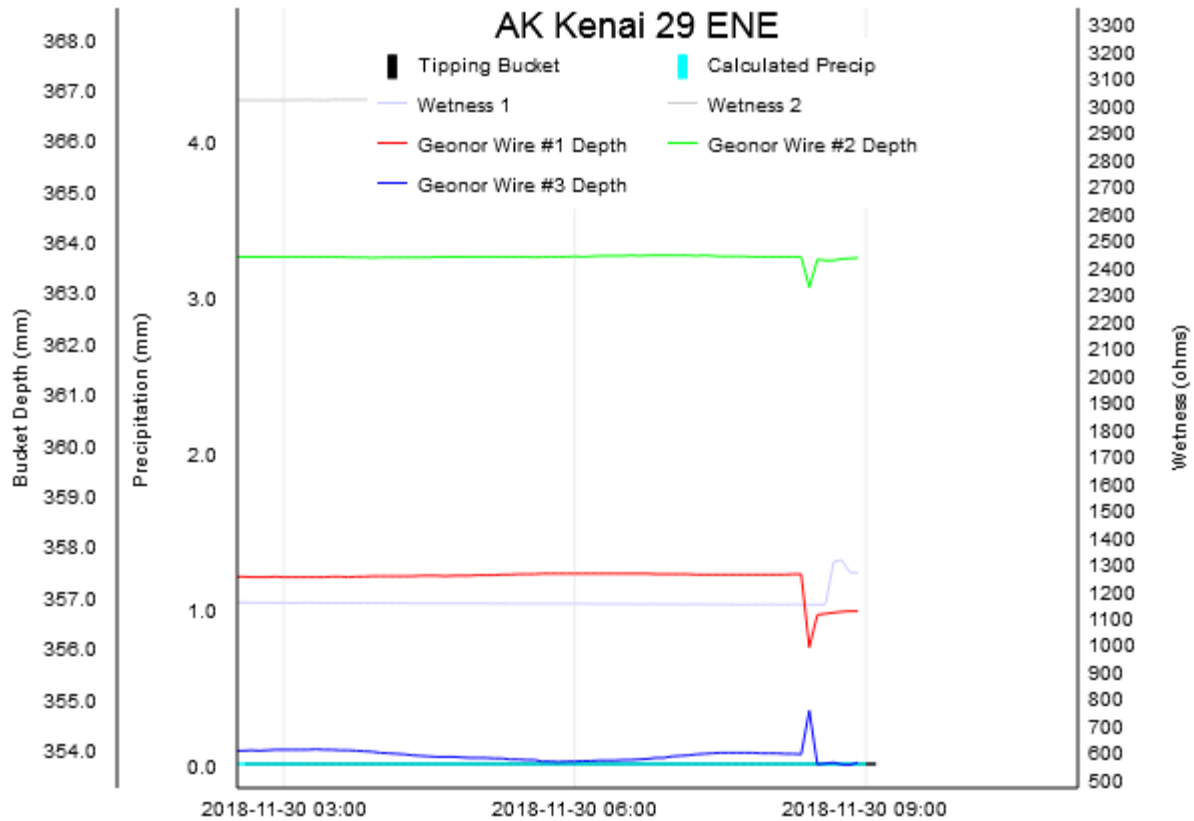


Figure 5: Precipitation gauge data from the USCRN station in Kenai for the morning of November 30th, 2018. The precipitation gauge picked up the signal of the magnitude 7 earthquake that struck the Anchorage area. Figure credit: Howard Diamond, NOAA.

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, visit the center web site at <http://akclimate.org>. Please report any errors to webmaster@akclimate.org.