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Natural Resource Program Center

Annual Climate Summary 2006
Central Alaska Network

Natural Resource Technical Report NPS/CAKN/NRTR—2008/141

ON THE COVER
Climate station at Tebay Lake Wrangell – St. Elias National Park and Preserve
Photograph by: NPS Photo by Pam Sousanes

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Natural Resource Technical Report NPS/CAKN/NRTR—2008/141

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December 2008

U.S. Department of the Interior
National Park Service
Natural Resource Program Center
Fort Collins, Colorado

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Please cite this publication as:

Sousanes, P. J. 2008. Annual climate summary 2006. Central Alaska Network. Natural Resource Technical Report NPS/CAKN/NRTR—2008/141. National Park Service, Fort Collins, Colorado.

NPS D-174, December 2008

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Executive Summary

Using methodologies developed for the Central Alaska Network (CAKN), climate was monitored at existing National Weather Service stations and new CAKN climate stations in and around Denali National Park and Preserve, Wrangell -St. Elias National Park and Preserve, and Yukon-Charley Rivers National Preserve. In 2006, climate in the region reflected near normal conditions for both temperature and precipitation, however there was substantial variability within the seasons. Annual temperatures averaged across the state of Alaska ranked 33rd warmest since 1918, the coolest annual period since 1999. Winter temperatures in 2006, however, were above average for the 7th consecutive year. The annual precipitation totals for most of the sites in CAKN were near normal, but it was variable throughout much of the area with periods of excessive rainfall in August and October south of the Alaska Range and below normal snowfall amounts throughout most of the region.

Introduction

Denali National Park and Preserve, Wrangell–St. Elias National Park and Preserve, and Yukon-Charley Rivers National Preserve make up the Central Alaska Inventory and Monitoring Network (CAKN), covering over 21 million acres. There are three major Alaska climate regimes within CAKN; a maritime climate, a transitional-maritime climate, and a continental interior climate. The defining features of the CAKN climate are large-scale general circulation patterns, storm tracks, and prevailing winds. The main geographic features affecting the patterns of climate are terrain and proximity to the coast. The Chugach, Wrangell, St. Elias, and Alaska Mountain Ranges are terrain barriers which block the major flow pattern off of the Gulf of Alaska. The amount of precipitation decreases and the seasonal temperatures become much more variable as you move away from the coast along the southern portions of Wrangell-St. Elias into the interior of Alaska. Another major climatic factor of these mountain ranges is cold air drainage and pooling in valleys and depressions that often causes persistent winter inversions in interior Alaska.

The CAKN climate monitoring program deployed sixteen new climate stations between 2003 and 2005, mostly at higher elevations, to capture elevational and latitudinal climate gradients within the parks, and to capture data in areas where there were no baseline references. The monitoring protocols, which included the site selection process, were completed in 2004 (Sousanes 2004). The analyses for this annual report are based on the long-term National Weather Service cooperative sites in and around the CAKN parks that have been in operation for 24 to 82 years. The new sites are analyzed for comparison, but long-term trends will take time to develop. This is the second in a series of reports for the Central Alaska Network Climate Monitoring Program.

Climate Year 2006 Synopsis

The climate in CAKN for 2006 reflected both local and regional scale patterns. Winter temperatures over most of the area were extremely variable with temperatures above normal in February, October, and December, but well below normal in January and March. November was the coldest on record for many of the long-term stations in CAKN. The spring and summer months were near normal, and the mean temperatures in October and May were warmer than normal.

The 2006 annual mean temperature for the lower 48 contiguous states was the second warmest year on record (NOAA 2007), but for the Central Alaska region the annual temperatures were just at normal, with the Copper River Valley and Cantwell stations reporting just below normal annual temperatures (Figure 1). Annual temperatures for 2006, averaged across the state of Alaska, ranked 33rd warmest since 1918, the coolest annual period since 1999. The previous six years had annual anomalies averaging from nearly 2 °F below the mean to nearly 4 °F above the mean. Winter temperatures in 2006 were above average for the 7th consecutive year. Both spring and summer were slightly cooler than average and fall was slightly warmer. Figure 2 gives a synopsis of statewide temperatures in Alaska for 2006 (NOAA 2007).

Precipitation in the CAKN during 2006 was variable throughout much of the area with periods of excessive rainfall in August and October south of the Alaska Range. Most of the longer-term sites had total annual precipitation totals very close to normal. Yakutat was the one exception with annual precipitation 30 inches below its normal of 160.4 inches. Snowpack also showed substantial variation. Snowpack ranged between 70 – 109 % of normal for the central interior from January through May (NRCS 2007). The snowpack for the Yukon-Charley area was above normal for most of the season. The White River area of Wrangell-St. Elias was well above average in May. The Gulf Coast was the one area of the region that had significantly less snowfall than normal. Figure 3 shows the statewide precipitation trends (NOAA 2007). Cool and wet conditions kept wild fires across the state to a minimum, unlike the previous two years.

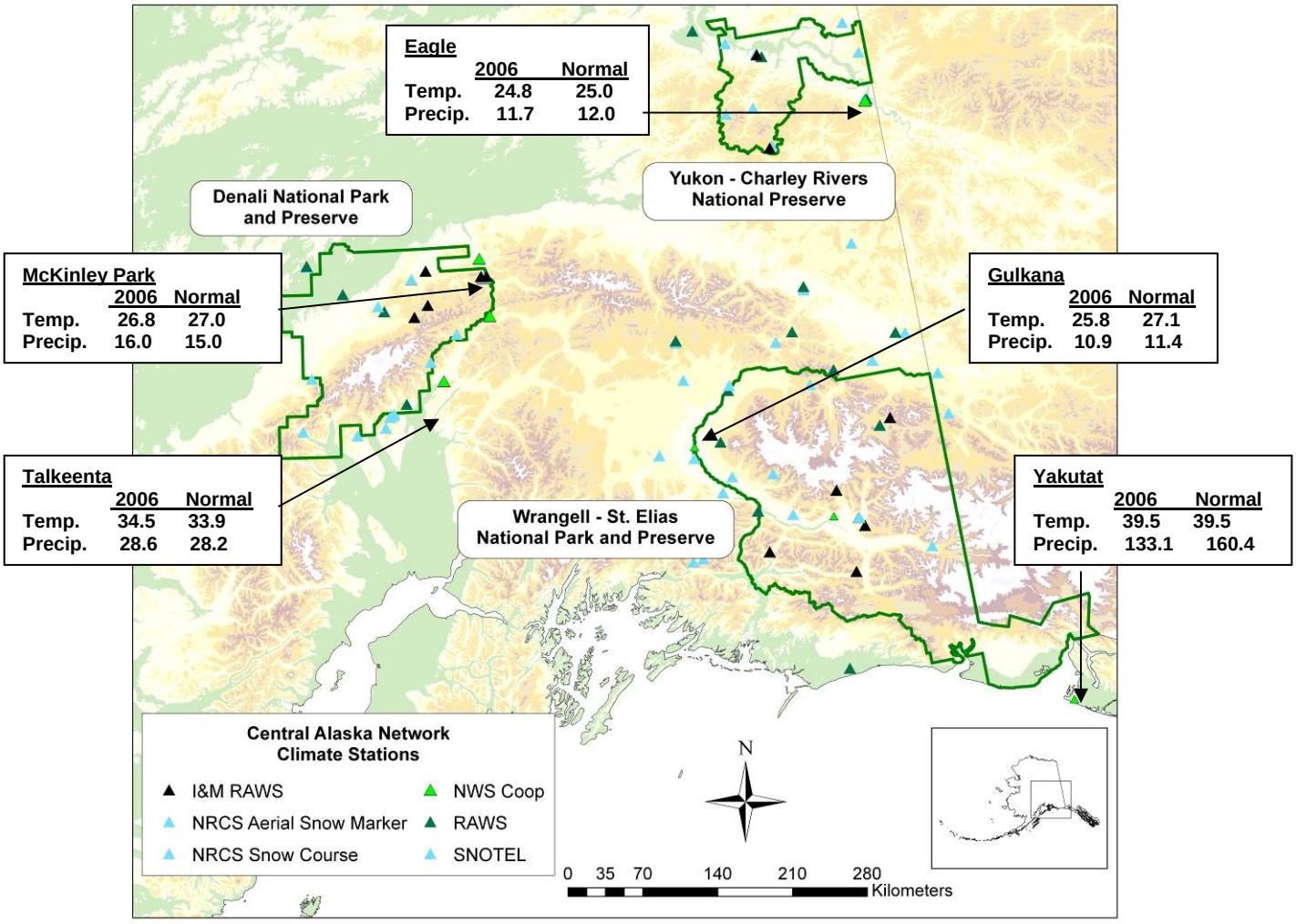

Figure 1. Mean annual temperature and precipitation totals for long-term sites in CAKN for 2006 compared with 1971-2000 normals.

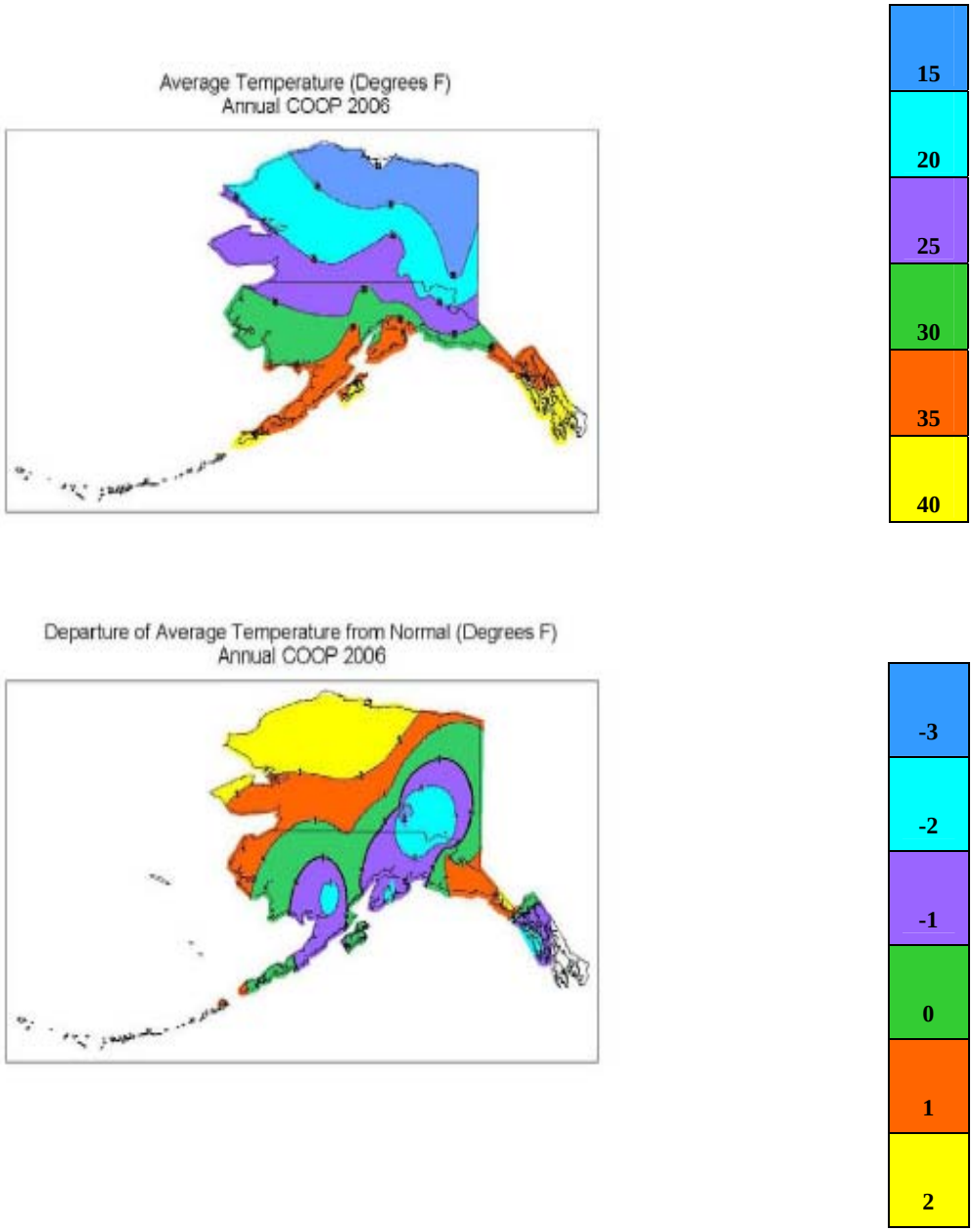

Figure 2. Mean annual temperature and departure from normal at the National Weather Service Cooperative Observer (COOP) Stations (NOAA 2007)

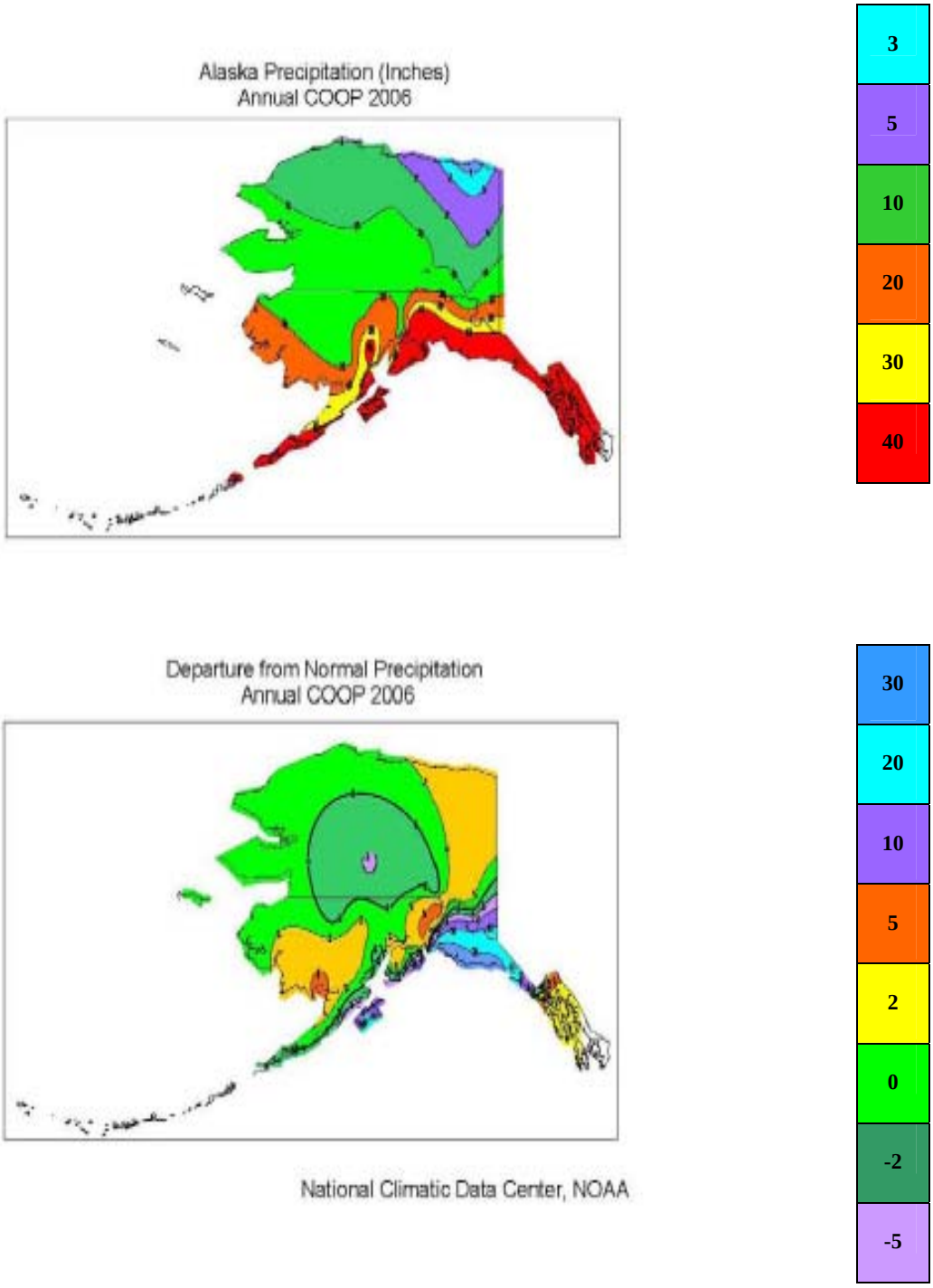

Figure 3. Alaska 2006 - Total annual precipitation and departure from normal at the National Weather Service Cooperative Observer (COOP) Stations (NOAA 2007).

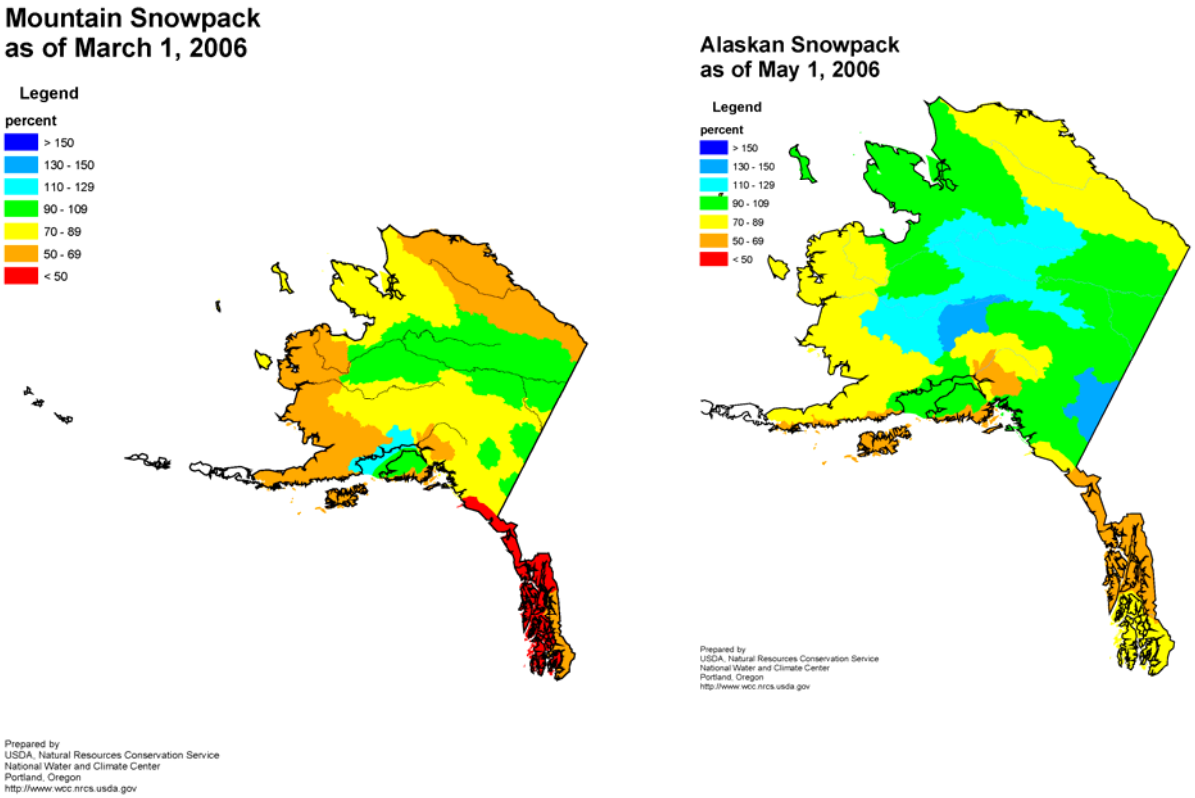

Figure 4. March 1 and May 1 snowpack depths for Alaska 2006 (NRCS 2006).

Central Alaska Network Climate Characterization

The central Alaska climate can be characterized by the three major climate regimes that span from the southern boundaries of the network along the coast to the interior. The southern coast of Wrangell-St. Elias is significantly affected by the Gulf of Alaska. The Pacific Ocean moderates the temperature along the coast in both summer and winter, and brings a considerable amount of precipitation to the coastal areas and the southern flanks of the mountain ranges, including the Chugach and St. Elias Ranges that ring the Gulf Coast. Just north of these ranges the precipitation tapers off and the temperatures start to exhibit the annual variations found in the continental interior. The winters are cold and the summers can get hot. The areas farthest north, and the farthest from the coast, are true interior climates characterized by low annual precipitation and large seasonal variation in temperature.

Elevation plays a significant role in the climate of the CAKN parks, with steep topographic gradients found in all of the parks. In general, temperatures decrease with elevation, except in the interior where winter temperature inversions are more the norm. Precipitation generally increases with elevation, especially on the south facing flanks of the major mountain ranges that catch the moisture coming from the Gulf of Alaska. The Alaska Range is the final barrier and also the loftiest. Total annual precipitation averages north of this range are low at 12 to 15 inches annually, compared with the Gulf Coast which averages 160 inches annually. McCarthy, which

is just north of the Chugach Range, in WRST exhibits many of the characteristics of an interior climate with precipitation at 16 inches and a mean annual temperature of 28° F, more similar to interior sites than coastal sites.

Solar radiation is also a major factor in Alaska's climate, in the summer it is plentiful and the air is generally well mixed by surface winds. In the winter, there is minimal incoming radiation, especially at higher latitudes, and the cold still air often sinks to valley bottoms. It is common to have persistent winter temperature inversions, especially in November, December, and January. This diversity in climatic conditions across the CAKN parks supports high levels of biological diversity, and many times is the limiting factor for species ranges.

Methods

The stations used for analysis in this summary report are seven climate stations with the longest, most complete records nearest the three CAKN parks that represent the major climate regimes in the network (Table 1). These stations have long enough records to compare 2006 data with the latest normal period, 1971-2000. For these sites temperature, precipitation, and snowfall are analyzed. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations. Five additional sites are analyzed to try and capture winter temperature inversions and climate deviations at higher elevations (Table 2). Most of the summaries, analysis, charts, and graphs from NOAA and NRCS are in standard units; in order to standardize units throughout the report data are presented in standard units and not metric as is usually the norm. Period of record means for the long-term sites are available in Appendix A and monthly data for all the CAKN are available in Appendix B.

Table 1. Long-term sites in CAKN used for data analysis

Name	***Lat***	***Long***	***Elev (ft)***	***Network***	***Start***	***End***	***Park***
Eagle	64.7666	-141.2000	850	COOP	1949	Present	YUCH
McKinley Park	63.7195	-148.9656	2060	COOP	1925	Present	DENA
Cantwell	63.4000	-148.9000	2150	COOP	1983	Present	DENA
Talkeetna	62.1800	-150.0600	350	COOP	1949	Present	DENA
McCarthy	61.4166	-143.0000	1250	COOP	1984	Present	WRST
Gulkana	62.1502	-145.4500	1580	SAO	1949	Present	WRST
Yakutat	59.5000	-139.6700	30	SAO	1936	Present	WRST
Nabesna	62.3719	-143.0131	3100	COOP	1967	Present	WRST

Table 2. CAKN sites used for high and low elevation correlations

Name	*Lat*	*Long*	*Elev (ft)*	*Network*	*Start*	*End*	*Park*
Upper Charley	64.5169	-143.2023	3654	CAKN	2005	Present	YUCH
Coal Creek	65.30413	-143.1570	820	CAKN	2004	Present	YUCH
Chicken Creek	62.1240	-141.8473	5260	CAKN	2004	Present	WRST
Chititu	61.2735	-142.6209	4554	CAKN	2004	Present	WRST
May Creek	61.3208	-142.5844	1650	CAKN	1990	Present	WRST
Eielson Visitor Center	63.4307	-150.3102	3730	CAKN	2005	Present	DENA

Results

Temperature

Data records for temperature have been collected at seven locations around the CAKN since 1949. The mean annual temperatures around the CAKN region in 2006 were at, or just below normal. Gulkana and McCarthy were the coolest, at 1.3 degrees F below normal (Figure 5). The mean monthly temperatures included record cold months at some locations and months that were well above average (Table 3 and Figure 6).

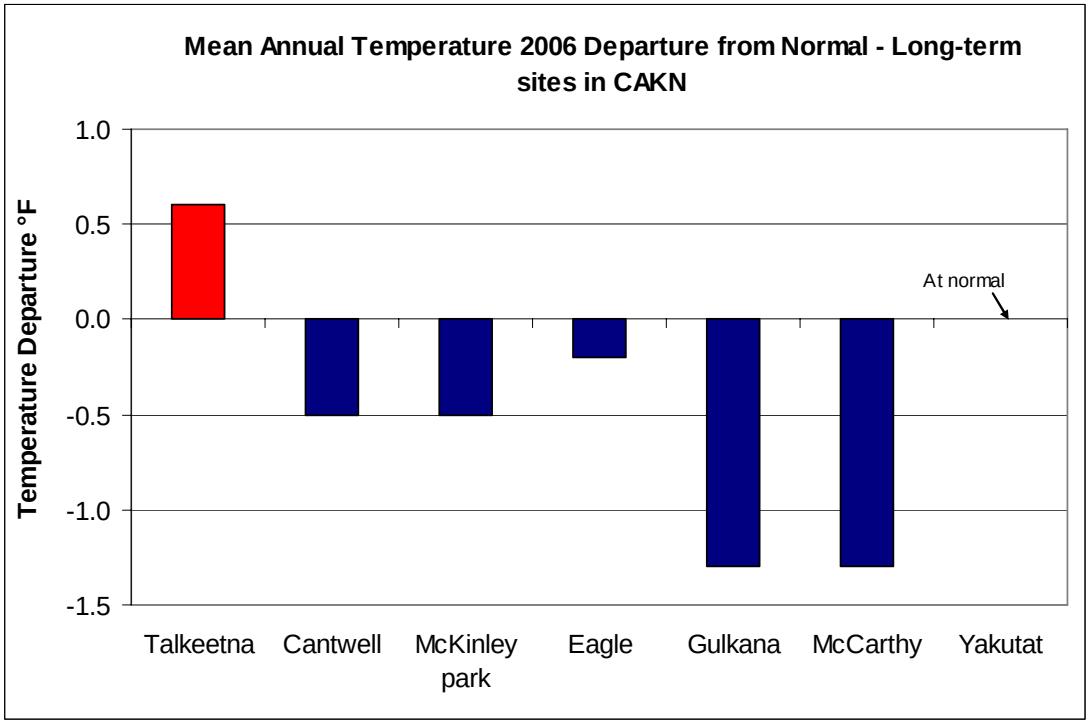

Figure 5. Mean annual temperature departure from normal at long-term CAKN sites.

Table 3. Departure from normal (1971-2000) for long-term sites in CAKN.

Site	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Annual*
Talkeetna	-5.6	2.6	0.3	0.4	3.2	-1.1	0.5	-1.3	2.7	4.8	-5.0	5.9	0.6
Cantwell	-9.7	4.9	-5.7	-1.0	1.7	0.4	0.0	-1.7	2.3	7.9	-12.0	6.1	-0.5
McKinley Park	-11.6	10.7	-3.8	-1.8	2.0	-0.5	-0.8	-1.4	5.3	7.8	-14.0	4.3	-0.5
Eagle	-3.0	11.9	-5.9	-1.0	0.8	1.0	0.2	-2.1	2.3	4.9	-19.0	8.3	-0.2
Gulkana	-7.0	2.3	-5.6	-0.2	1.7	0.7	0.8	-2.1	1.7	5.4	-19.0	5.4	-1.3
McCarthy	-10.0	7.6	-8.0	-0.1	1.0	1.2	1.3	-0.7	2.7	5.0	-20.0	4.7	-1.3
Yakutat	2.6	0.9	-4.1	-0.2	1.3	2.0	0.8	0.1	0.5	1.0	-9.9	5.4	0.0

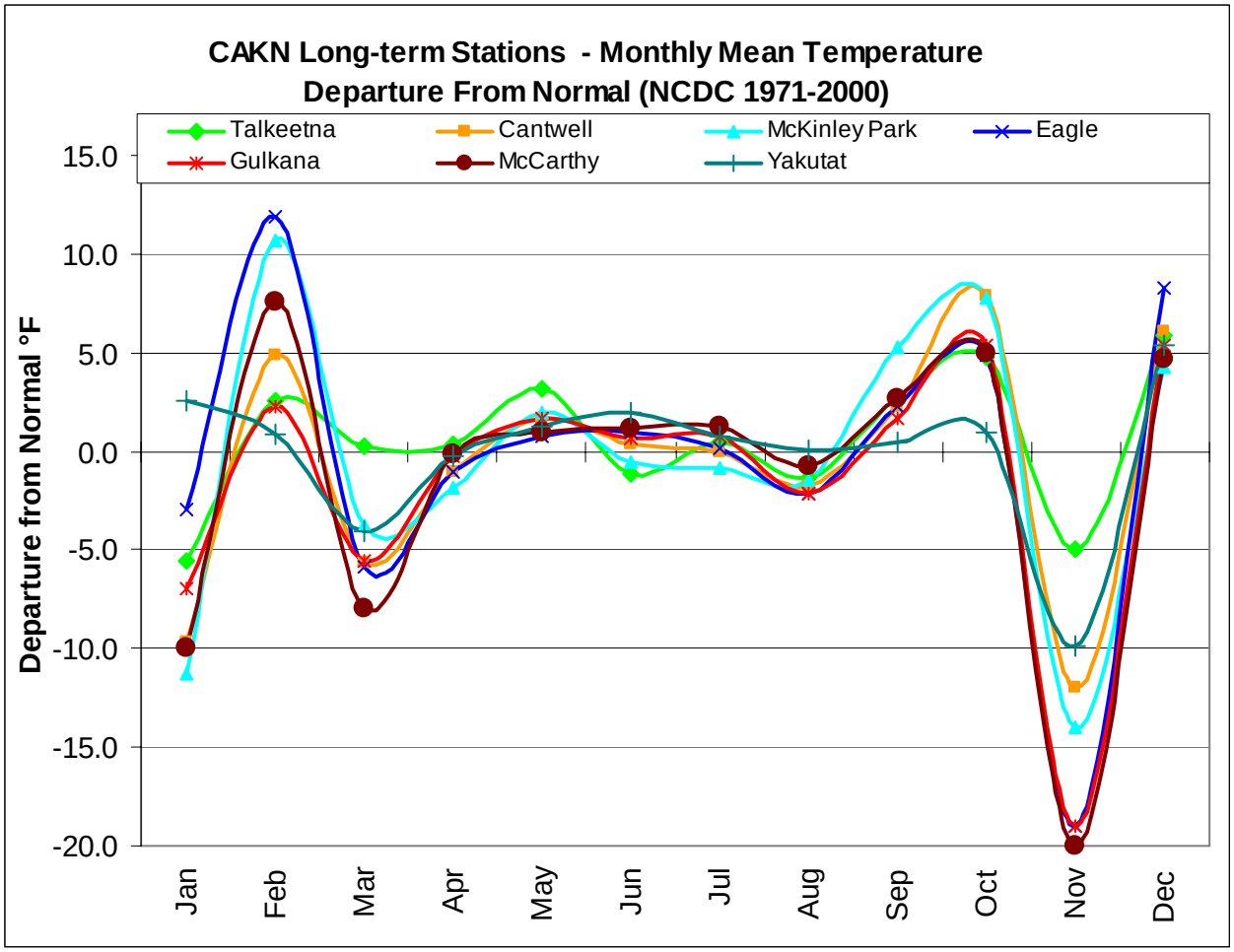

Figure 6. CAKN Mean monthly temperatures departure from normal at long-term sites.

January temperatures at interior locations, including McKinley Park and McCarthy were 10 to 12 degrees F colder than normal, and at other interior sites 3 to7 degrees F colder than normal. It was the coldest January at McKinley Park since 1989. Yakutat, which is under a completely different climatic influence (Pacific Ocean) was 2 degrees F warmer than normal. In February,

all sites were above normal with the strongest departure at McKinley Park and Eagle. The temperatures dropped again in March; mean monthly temperatures were 3 to 8 degrees colder than normal.

April through July temperatures were near normal for all sites from the coast to the deep interior. The mean date of the last spring freeze is usually between June 1 and June 10 for the lower elevations and valleys and between June 11 and June 20 for the higher elevations (Figure 7). A late hard freeze, with record low temperatures, affected most interior locations the first week of June. August was a bit cooler than normal at all locations, except for Yakutat, which will often be the exception in this group of stations since it sits on the North Gulf Coast, nine meters above sea level.

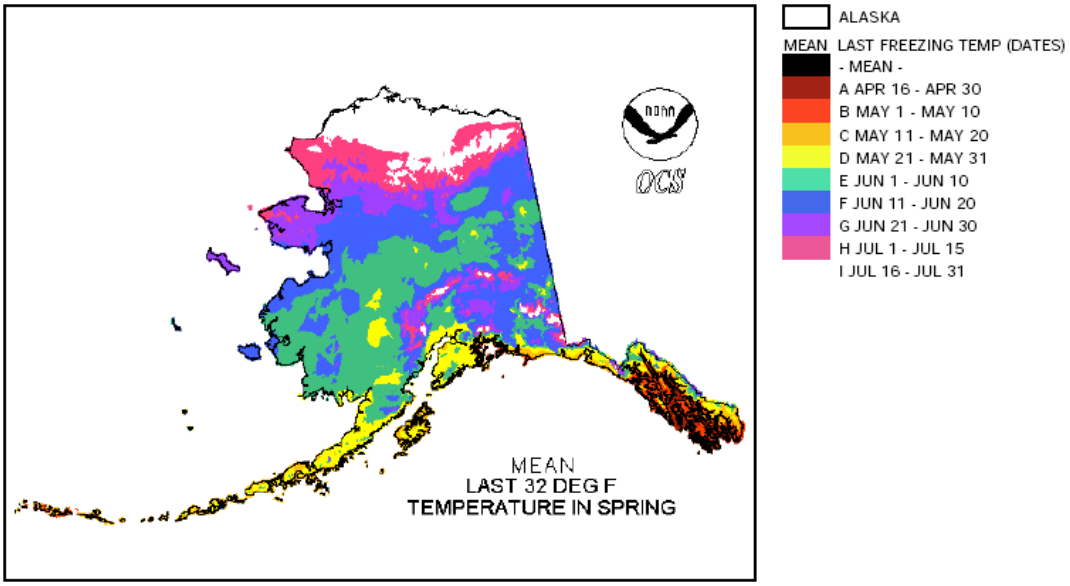

Figure 7. Mean last spring freeze date (Temp <32°F) (NOAA, 2007).

Temperature variability for the fall and early winter was substantial. The fall was warm - October of 2006 was the 6th warmest on record for the state with temperatures in CAKN 5 to 8 degrees above normal (Figure 8), except for Yakutat which was only slightly warmer than normal. The near record warmth in October was followed by the coldest November on record for Gulkana, Eagle, and Cantwell. Following the roller coaster like variability in temperatures through the fall and winter seasons, December mean temperatures for all CAKn sites were once again warmer than normal (Figure 9). See Appendix C for a list of all the record high and low temperatures and precipitation amounts for the long-term sites.

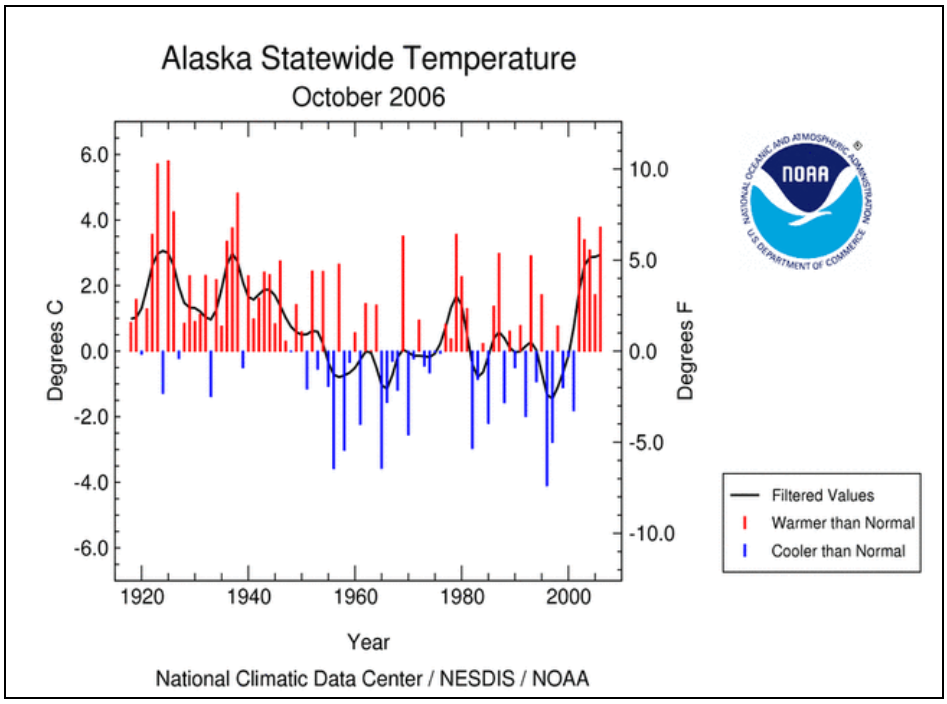

Figure 8. Alaska was 6th warmest on record (1918-2006) for October with temperatures 6.8°F (3.8°C) above the 1971-2000 mean (NOAA 2007).

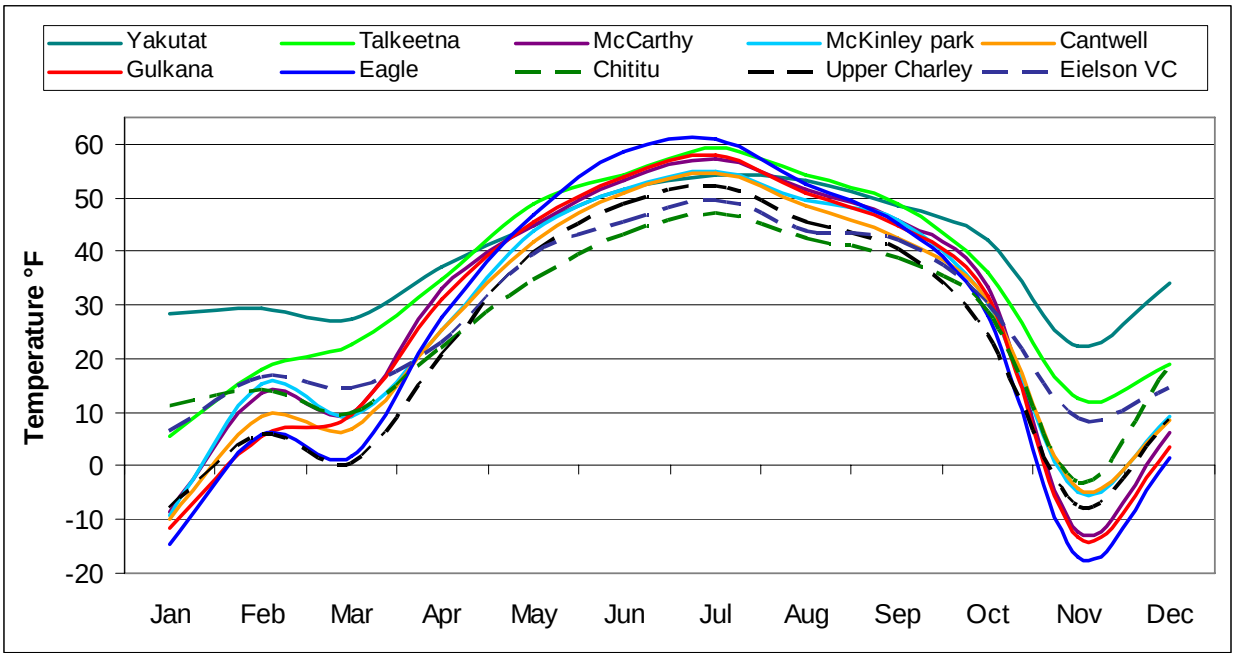

Figure 9. CAKN mean monthly temperatures for 2006.

The average annual temperatures for all of the CAKN sites are listed in Table 4. Eagle, the farthest north and the farthest inland from the coast has the coldest annual temperature and Yakutat being on the coast is the warmest. Along the eastern region of the CAKN the temperatures drop off more quickly than those in the western region from south to north, for example Gulkana and Cantwell have similar average annual temperatures and Gulkana is one degree in latitude farther south and at a lower elevation. McKinley Park is warmer than Cantwell although similar in elevation most likely due to the Chinook winds that raise the temperatures in the winter months.

Table 4. Mean monthly and annual temperatures for 2006 from long-term sites compared with 1971-2000 normal period.

# of years	*Site*	***JAN***	***FEB***	***MAR***	***APR***	***MAY***	***JUN***	***JUL***	***AUG***	***SEP***	***OCT***	***NOV***	***DEC***	***ANN***
57	**Talkeetna**													
	2006	5.4	18.0	22.9	34.7	49.0	54.2	59.4	54.3	48.9	36.2	12.5	18.9	*34.5*
	1971-2000 normal	*11.0*	*15.4*	*22.6*	*34.3*	*45.8*	*55.3*	*58.9*	*55.6*	*46.2*	*31.4*	*17.5*	*13.0*	*33.9*
23	**Cantwell**											Coldest on record		
	2006	-9.9	9.1	6.9	25.2	41.7	51.0	54.7	48.4	42.5	30.6	-4.1	8.7	*25.4*
	1971-2000 normal	*-0.2*	*4.2*	*12.6*	*26.0*	*40.0*	*50.6*	*54.7*	*50.1*	*40.2*	*22.7*	*7.8*	*2.6*	*25.9*
82	**McKinley Park**													
	2006	-9.3	15.2	9.3	25.4	44.0	51.7	54.8	49.5	45.8	30.3	-4.9	9.2	*26.8*
	1971-2000 normal	*2.3*	*4.5*	*13.1*	*27.2*	*42.0*	*52.2*	*55.6*	*50.9*	*40.5*	*22.5*	*9.1*	*4.9*	*27.0*
51	**Eagle**											Coldest on record		
	2006	-14.6	5.8	1.9	27.8	46.8	58.5	61.0	52.7	45.1	28.2	-17.0	1.5	*24.8*
	1971-2000 normal	*-11.6*	*-6.1*	*7.8*	*28.8*	*46.0*	*57.5*	*60.8*	*54.8*	*42.8*	*23.3*	*2.2*	*-6.8*	*25.0*
56	**Gulkana**											Coldest on record		
	2006	-11.7	5.5	9.7	30.9	45.6	53.8	57.8	51.0	44.8	31.8	-13.4	3.8	*25.8*
	1971-2000 normal	*-4.7*	*3.2*	*15.3*	*31.1*	*43.9*	*53.1*	*57.0*	*53.1*	*43.1*	*26.4*	*5.5*	*-1.6*	*27.1*
21	**McCarthy**													
	2006	-12.5	13.6	10.0	33.1	45.0	53.2	57.2	51.5	46.0	33.3	-12.4	6.3	*27.0*
	1971-2000 normal	*-2.4*	*6.0*	*18.0*	*33.2*	*44.0*	*52.0*	*55.9*	*52.2*	*43.3*	*28.3*	*7.2*	*1.6*	*28.3*
58	**Yakutat**													
	2006	28.4	29.3	27.4	37.0	44.9	51.7	54.4	53.4	48.7	42.1	22.5	34.0	*39.5*
	1971-2000 normal	*25.8*	*28.4*	*31.5*	*37.2*	*43.6*	*49.7*	*53.6*	*53.3*	*48.2*	*41.1*	*32.4*	*28.6*	*39.5*

Yellow – YUCH, Green – DENA, Blue – WRST

Correlations between the paired high and low elevation sites are best described by monthly means rather than annual means (Table 5). In the summer the higher sites tend to be 5 to 10° colder depending on the elevation (an increase in elevation lowers the temperature), but in the winter if the air is still and the temperature plummets, the cold air sinks into the valleys and a persistent inversion sets up and the higher elevations can be 10 to 20° F warmer than the surrounding lowlands. The air is often still in the darker winter months due to the lack of solar radiation that generates the surface winds that are so common in the summer. Of course, if a storm system moves in from the Gulf of Alaska or Bering Sea, warm ocean winds (known as Chinook) often funnel through the mountain passes, raising temperatures and stirring up the air. The areas just north of these mountain passes often get winds in excess of 40 mph during these events.

Table 5. Monthly mean temperatures from CAKN stations 2006.

Site	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Annual*
Stampede	-17.7	12.5	2.7	23.8	44.8	52.4	54.0	47.8	43.8	28.5	-10.2	-0.8	**23.5**
Wigand	-16.0	13.9	1.5	22.6	45.2	52.5	54.2	47.9	44.9	28.7	-10.1	2.2	**23.9**
McKinley Park	-9.3	15.2	9.3	25.4	44.0	51.7	54.8	49.5	45.8	30.3	-4.9	9.2	**26.8**
Toklat	-3.7	16.2	7.4	23.0	40.6	48.1	51.1	45.7	42.7	29.8	-1.6	11.6	**25.9**
Eielson VC	6.5	16.5	14.5	23.0	39.5	45.6	49.5	43.8	42.2	30.2	8.9	14.8	**27.9**
Dunkle Hills	-0.8	9.9	6.4	21.1	37.4	46.4	50.8	45.1	40.7	26.5	3.4	13.1	**25.0**
Coal Creek	-0.1	5.8	5.8	21.8	45.4	57.7	58.7	51.2	45.5	28.4	-16.1	-4.7	**25.0**
Upper Charley	-8.0	5.8	0.6	20.8	39.7	48.8	52.3	45.4	40.6	24.3	-7.7	8.7	**22.6**
Chicken Creek	6.6	12.2	5.4	20.3	34.5	43.9	47.8	42.7	37.9	26.3	-5.8	13.3	**23.8**
Chititu	11.3	14.3	10.0	22.1	34.8	43.1	47.2	42.5	38.8	28.8	-3.1	19.0	**25.7**
May Creek	-8.5	9.1	11.0	33.3	46.6	53.8	57.7	50.8	43.7	31.7	-12.4	6.3	**26.9**
Gates Glacier	12.3	14.0	11.7	23.2	36.4	44.5	49.1	42.9	39.6	28.9	-0.8	20.8	**26.9**
Klawasi	-1.1	12.7	11.0	27.8	42.6	49.7	54.7	48.5	43.1	31.3	-6.9	14.9	**27.4**
McCarthy	-8.5	13.6	10.0	33.1	45.0	53.2	57.2	51.5	46.0	33.3	-12.4	6.3	**27.4**
Tebay	-2.9	10.6	9.0	26.5	38.7	48.6	52.5	48.1	43.0	33.4	-0.5	13.7	**26.7**
Tana Knob	6.4	10.6	7.7	23.6	35.9	45.3	49.5	45.7	42.1	35.8			**30.3**

Yellow – YUCH, Green – DENA, Blue – WRST

The following tables show the monthly and annual variation between low and high elevation sites in the three CAKN parks. Table 6 shows Chicken Creek and Nabesna sites which are both located north of the Wrangell Mountain Range in WRST in the continental interior, north of two major mountain ranges. The annual temperature was 1.2 degrees colder at Chicken Creek, the

higher site. However, January, February, November and December average temperatures were warmer at Chicken Creek. Table 6 also shows May Creek and Chititu which are both located in the Chitina River Valley between the Wrangell Mountain Range to the north and the Chugach Range to the south. The higher site was again 1.2 degrees colder than the lower site, with the average winter monthly temperatures warmer at the higher site.

Table 7 shows the high and low elevation sites in YUCH. Coal Creek, the lower site, was surprisingly warmer than Upper Charley in January and had the same average temperature for February. November and December were colder at Coal Creek. The records at Eagle were checked to see if they matched Coal Creek, and January seems to be an anomaly at Coal Creek; the Eagle monthly temperature was 15 degrees colder than Coal Creek. The warmest high elevation site for 2006 was Eielson Visitor Center in Denali (Table 7). The monthly average temperatures were warmer in January, February, March, October, November, and December, or 6 out of 12 months. This could be due to the fact that the site is just north of the Alaska Range subject to the warm Chinook winds that come through the passes in the winter and at an elevation that is above the inversion level. It is the only site that has a warmer annual temperature than the corresponding low elevation site.

Table 6. Mean monthly temperatures at high and low elevation paired sites in WRST.

Month	**Chicken Creek**	**Nabesna***		**Chititu**	**May Creek**
	Elev. - 5260'	**Elev. - 2830**		**Elev. - 4554'**	**Elev. - 1650'**
Jan	6.6	-7.2		11.3	-8.5
Feb	12.2	7.71		14.2	9.1
Mar	5.4	6.71		10.0	10.9
Apr	20.3	27.5		22.1	33.3
May	34.5	42.9		34.7	46.6
Jun	43.9	50.3		43.2	53.8
Jul	47.8	54.5		47.3	57.7
Aug	42.6	48.9		42.4	50.9
Sep	37.9	43.4		38.8	43.7
Oct	26.4	28.9		28.8	31.6
Nov	-5.8	-8.0		-3.1	-12.5
Dec	13.3	4.1		19.0	6.3
Annual	***23.8***	***25.0***		***25.7***	***26.9***

Red is warmer temperatures and blue is colder temperatures.
*Chisana is usually compared to Chicken Creek, but due to data gaps Nabesna was used for this report.

There is much more variability in the diurnal winter temperatures at high elevation sites than there is at low sites that are subject to cold air pooling. Figure 10 shows two sites in YUCH; the Upper Charley River site at 3654 feet had a maximum variation of 30 degrees in one day while Coal Creek at 802 feet had a 10 degree difference that same day.

Table 7. Mean monthly temperatures at paired high and low elevations in YUCH and DENA.

Month	Upper Charley	Coal Creek		Eielson VC	Stampede
	Elev. - 3654’	Elev. - 802’		Elev. - 3730’	Elev. - 1800’
Jan	-8.0	-0.1		6.5	-17.7
Feb	5.8	5.8		16.5	12.5
Mar	0.6	5.8		14.5	2.7
Apr	20.8	21.8		23.0	23.8
May	39.7	45.4		39.5	44.8
Jun	48.8	57.7		45.6	52.4
Jul	52.3	58.7		49.5	54.0
Aug	45.4	51.2		43.8	47.8
Sep	40.6	45.5		42.2	43.8
Oct	24.3	28.4		30.2	28.5
Nov	-7.7	-16.1		8.9	-10.2
Dec	8.7	-4.7		14.8	-0.8
Annual	**22.6**	**25.0**		**27.9**	**23.5**

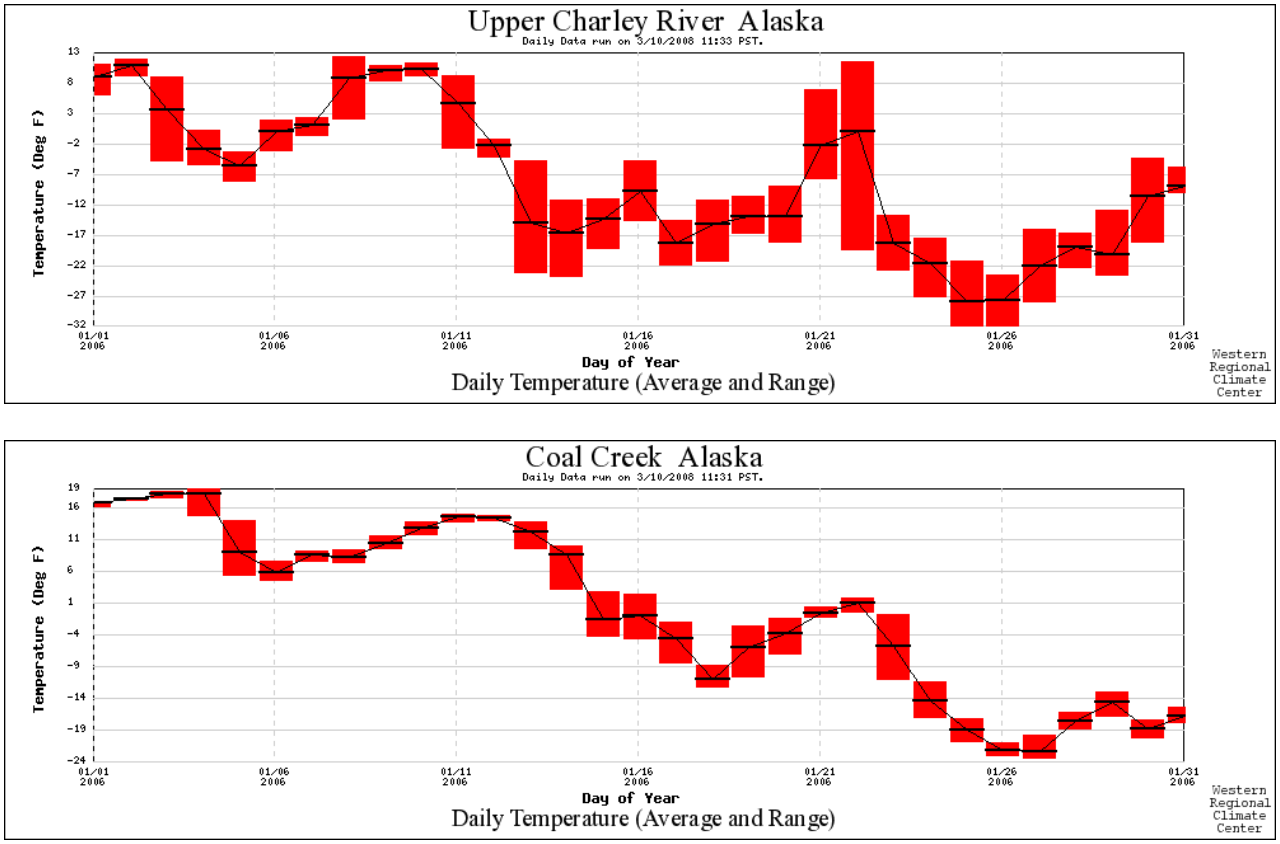

Figure 10. Comparison of diurnal winter temperatures at a high elevation site (top) and a low elevation site (bottom) in YUCH.

Precipitation

Annual precipitation totals throughout the network were near normal, except for McCarthy which had 3.5 inches more than normal, mostly due to heavy rain events in both August and November (Figure 11). McKinley Park had an inch more than normal and Cantwell, Talkeetna, Eagle and Gulkana were within 0.5 inches of normal (Table 9). Yakutat was below normal for the year with the driest November on record with a total of 1.8 inches for the month, normal is 15.2 inches. This was the coldest month on record for most sites in Alaska; a high pressure system dominated throughout the state for most of the month and clear skies prevailed. The mean temperature for November at Yakutat was 10 degrees below normal. There was very little precipitation in the state for the month and most sites were well below normal. The precipitation amounts for Yakutat are generally five times greater on average than the other sites in the network, because of this difference, Yakutat is not included in the figures due to scale issues, but the monthly data are included in Appendix D.

Cantwell, Talkeetna, Gulkana, and McCarthy precipitation totals were well above normal for August and October (Figure 11). Sites south of the Alaska Range had severe flooding in both of these months that caused considerable damages to roads and bridges in the region. The flooding events associated with these heavy rains made the "significant weather anomalies for 2006" world map compiled by NOAA (Appendix E).

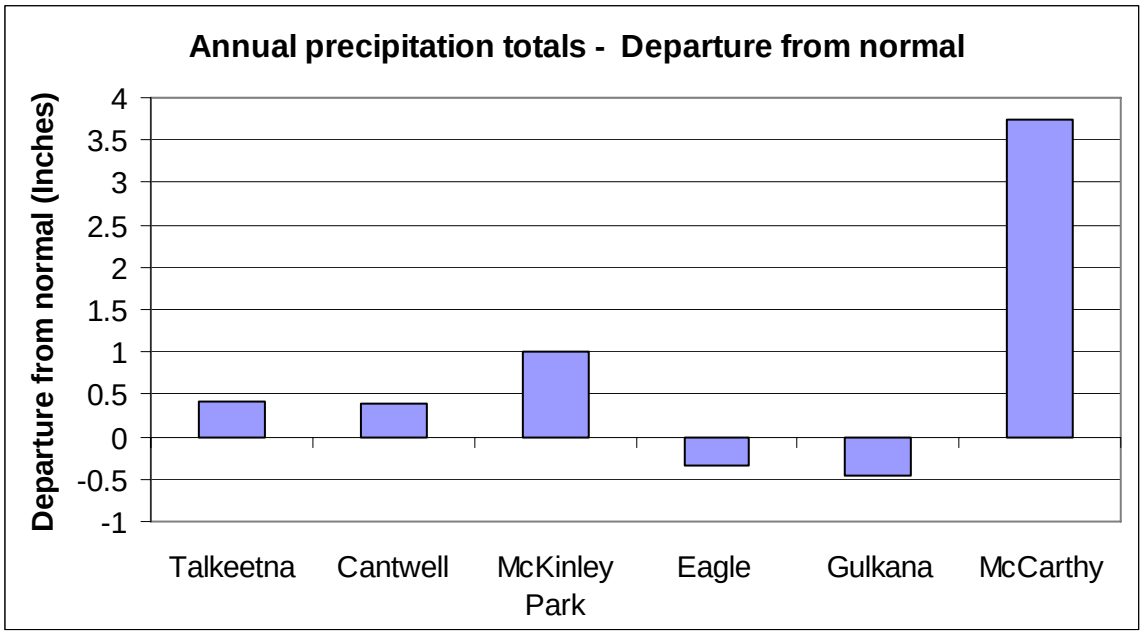

Figure 11. Annual precipitation totals departure from normal for long-term CAKN sites – 2006.

Table 8. Total monthly precipitation at long-term CAKN sites for 2006 compared with 1971-2000 normals

# of years of record	*Site*	***JAN***	***FEB***	***MAR***	***APR***	***MAY***	***JUN***	***JUL***	***AUG***	***SEP***	***OCT***	***NOV***	***DEC***	***ANN***
57	**Talkeetna**													
	2006	0.21	1.44	0.28	0.85	1.21	2.94	2.55	9.87	3.01	5.06	0.02	1.16	28.6
	1971-2000 normal	*1.45*	*1.28*	*1.26*	*1.22*	*1.64*	*2.41*	*3.24*	*4.53*	*4.35*	*3.06*	*1.78*	*1.96*	*28.18*
23	**Cantwell**													
	2006	0.35	1.41	0.19	0.63	0.36	1.93	2.26	4.78	0.89	2.48	0.3	0.77	16.35
	1971-2000 normal	*0.89*	*0.63*	*0.49*	*0.39*	*0.68*	*1.7*	*2.73*	*3.07*	*2.61*	*1.09*	*0.74*	*0.93*	*15.95*
82	**McKinley Park**													
	2006	0.6	0.87	0.49	0.48	0.28	2.76	3.64	3.01	1.44	1.37	0.12	0.92	15.98
	1971-2000 normal	*0.7*	*0.54*	*0.38*	*0.27*	*0.67*	*2.22*	*3.09*	*2.62*	*1.76*	*1.05*	*0.78*	*0.89*	*14.97*
51	**Eagle**													
	2006	0.3	0.12	0.77	0.08	0.76	2.78	1.31	2.21	1.3	1.22	0.19	0.63	11.67
	1971-2000 normal	*0.44*	*0.47*	*0.31*	*0.3*	*1.17*	*1.78*	*2.13*	*1.85*	*1.17*	*0.97*	*0.67*	*0.75*	*12.01*
56	**Gulkana**													
	2006	0.09	0.82	0.34	0.32	0.14	0.61	0.83	3.3	1.19	1.87	0.28	1.15	10.94
	1971-2000 normal	*0.45*	*0.52*	*0.36*	*0.22*	*0.59*	*1.54*	*1.82*	*1.8*	*1.44*	*1.02*	*0.67*	*0.97*	*11.4*
21	**McCarthy**													
	2006	1.14	1.52	0	1.14	0.47	2.14	1.21	3.24	2.7	5.69	1.37	0.85	21.47
	1971-2000 normal	*1*	*0.84*	*0.4*	*0.23*	*0.64*	*1.8*	*2.38*	*2.3*	*2.85*	*2.29*	*1.17*	*1.82*	*17.72*
58	**Yakutat**													
	2006	6.98	5.86	6.54	11.61	11.25	6.03	7.44	19	18.94	20.54	1.82	17.11	133.12
	1971-2000 normal	*13.2*	*11*	*11.4*	*10.8*	*9.78*	*7.17*	*7.88*	*13.3*	*20.9*	*24*	*15.2*	*15.9*	*160.4*

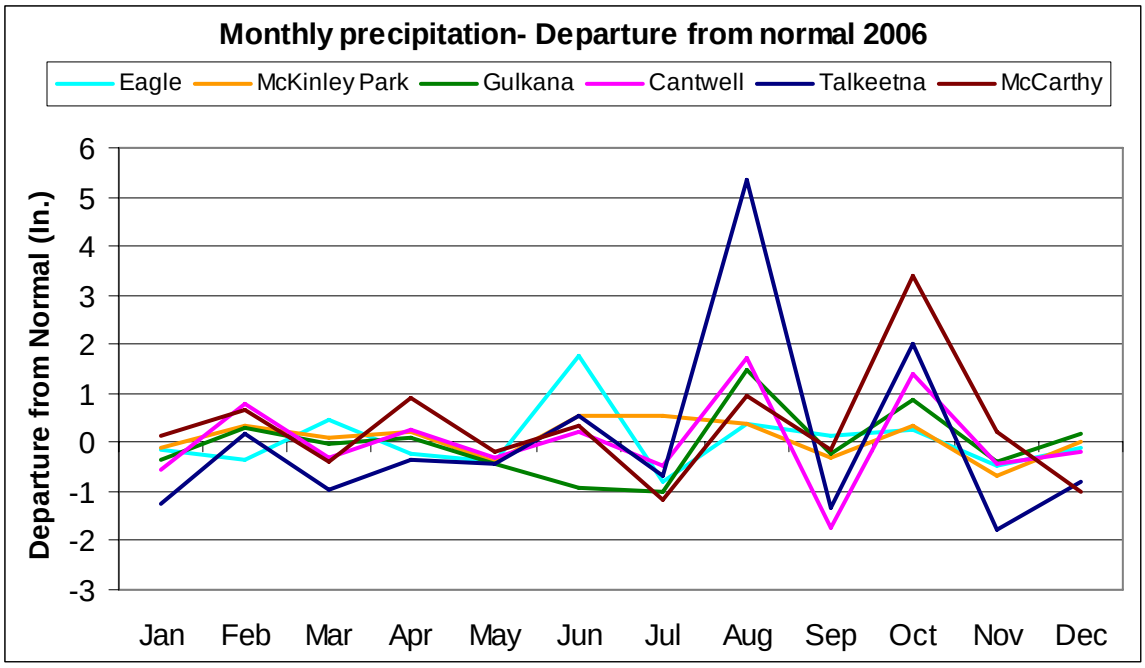

Figure 12. Monthly precipitation totals departure from normal for 2006.

Summary

Climate in the Central Alaska Network reflected near normal conditions for temperature in 2006. Annual temperatures averaged across the state of Alaska ranked 33rd warmest since 1918, the coolest annual period since 1999. Winter temperatures in 2006, however, were above average for the 7th consecutive year. Both spring and summer were slightly cooler than average and fall was slightly warmer. Wildfires across Alaska were not as active this year as in recent years.

Precipitation in the CAKN during 2006 was variable throughout much of the area with periods of excessive rainfall in August and October south of the Alaska Range. Most of the long-term sites had total annual precipitation totals very close to normal. Yakutat was the one exception with annual precipitation 30 inches below normal, or 83% of normal. Snowpack was variable for the region and ranged between 70 – 109% of normal for the central interior. The Gulf Coast was the one area of the region that had significantly less snowfall than normal.

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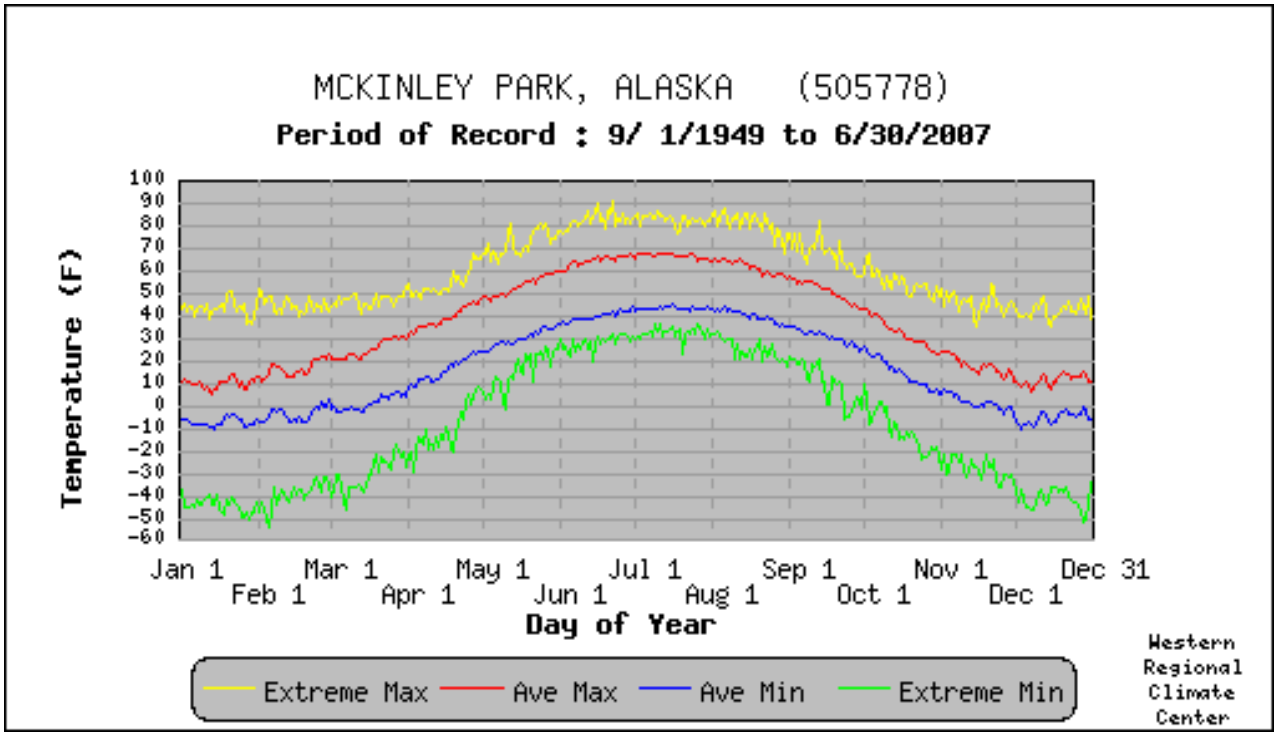
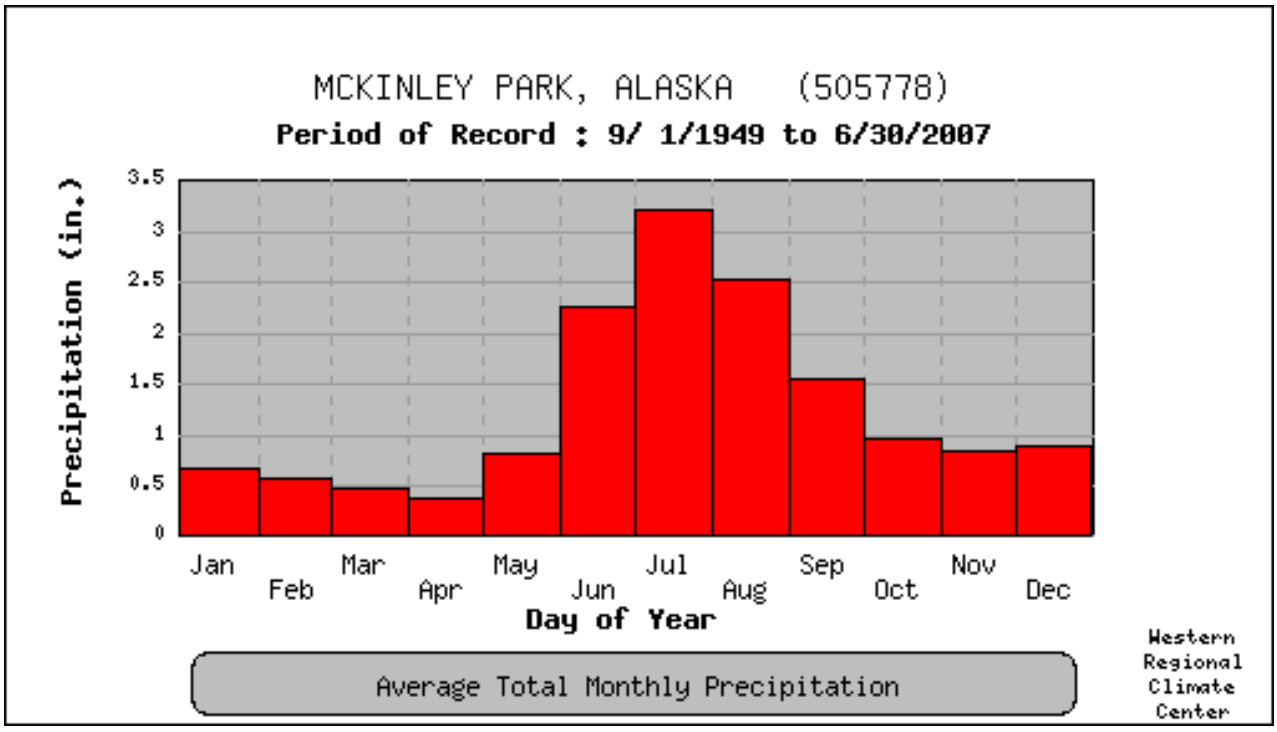
Appendix A: Period of Record means for long-term sites in CAKN

McKinley Park Period of Record Monthly Climate Summary

Period of Record : 9/ 1/1949 to 6/30/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	9.6	16.1	25.0	38.7	53.5	64.3	66.4	61.4	50.5	32.3	17.6	11.2	37.2
Average Min. Temperature (F)	-7.5	-4.3	0.8	15.7	29.8	39.6	43.3	39.9	30.5	14.4	1.1	-5.7	16.5
Average Total Precipitation (in.)	0.68	0.58	0.47	0.37	0.83	2.29	3.24	2.54	1.58	0.97	0.84	0.91	15.29
Average Total SnowFall (in.)	10.5	9.8	7.8	5.1	3.1	0.3	0.0	0.0	4.4	12.8	13.3	13.6	80.7
Average Snow Depth (in.)	17	20	21	17	2	0	0	0	1	3	8	13	8

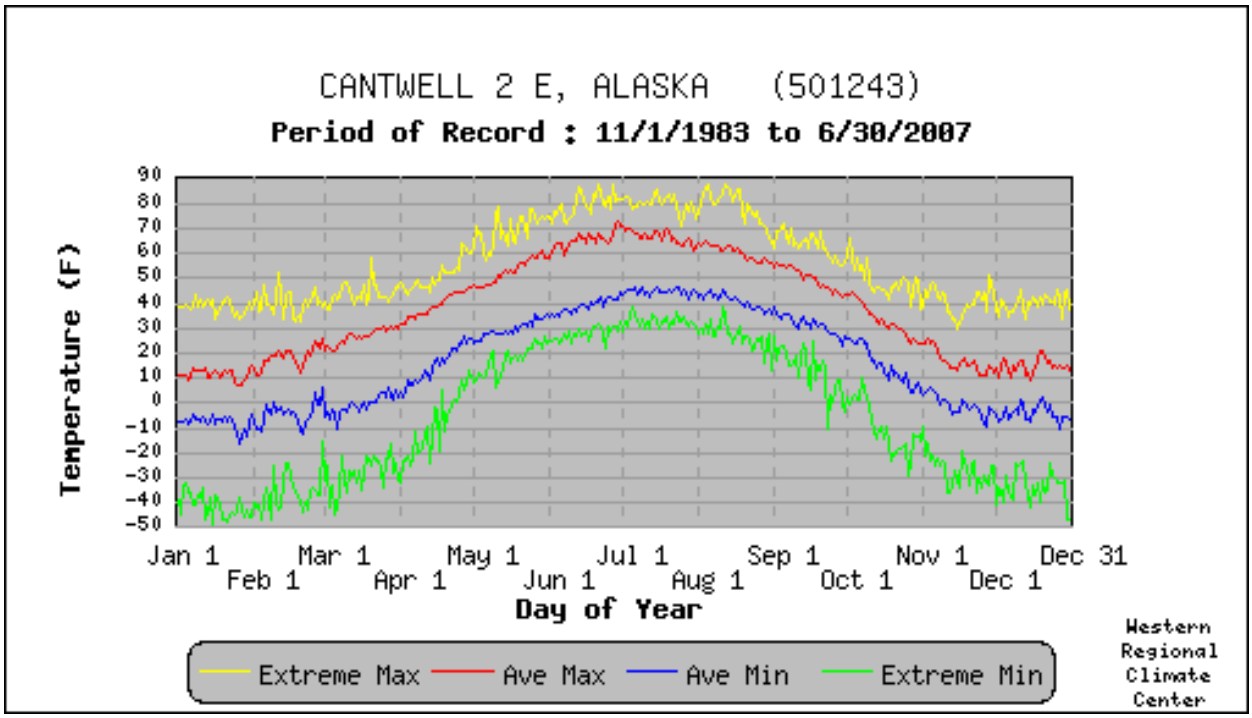


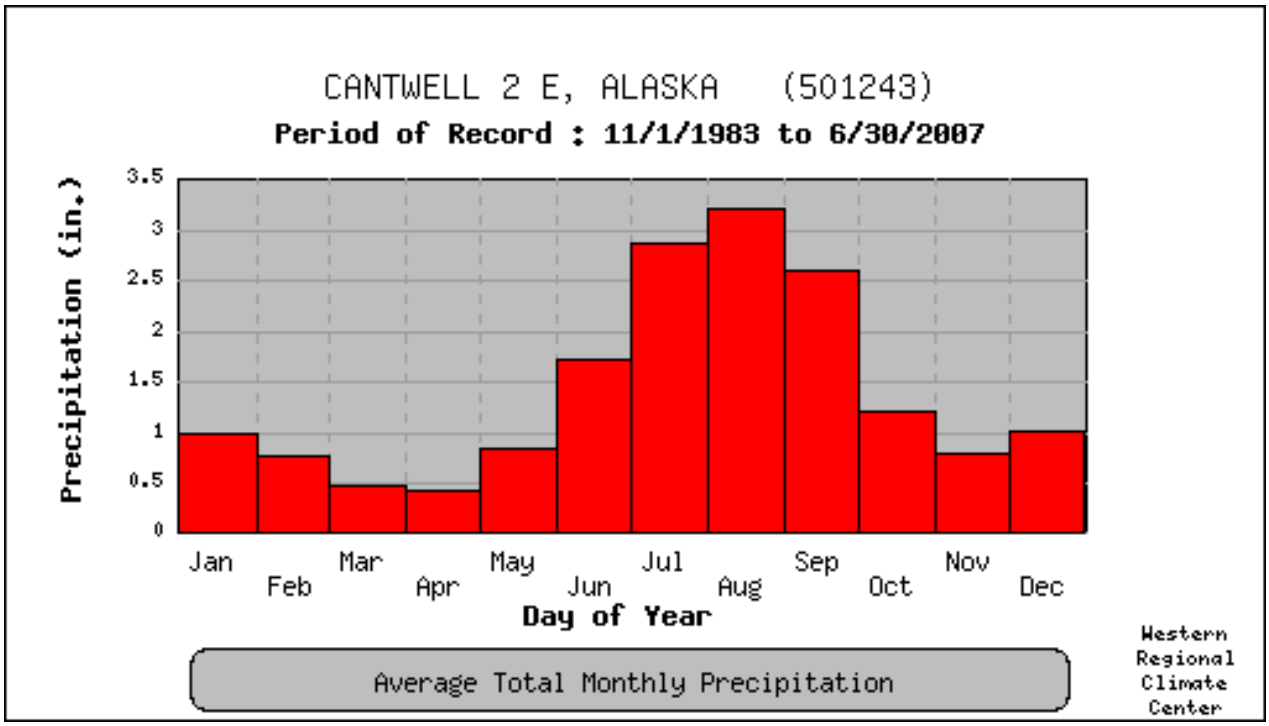


Cantwell Period of Record Monthly Climate Summary

Period of Record : 11/1/1983 to 6/30/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	11.2	17.6	25.8	38.7	52.7	65.0	66.2	60.4	49.7	32.4	16.3	14.7	37.5
Average Min. Temperature (F)	-8.5	-5.3	-1.0	14.7	28.8	38.2	44.3	40.3	30.7	14.7	-1.3	-4.7	15.9
Average Total Precipitation (in.)	0.98	0.76	0.46	0.42	0.84	1.74	2.88	3.23	2.63	1.18	0.81	1.02	16.95
Average Total SnowFall (in.)	22.2	16.0	12.7	10.6	5.6	0.2	0.3	0.0	4.3	16.3	18.3	21.8	128.2
Average Snow Depth (in.)	25	29	29	21	3	0	0	0	0	3	9	15	11

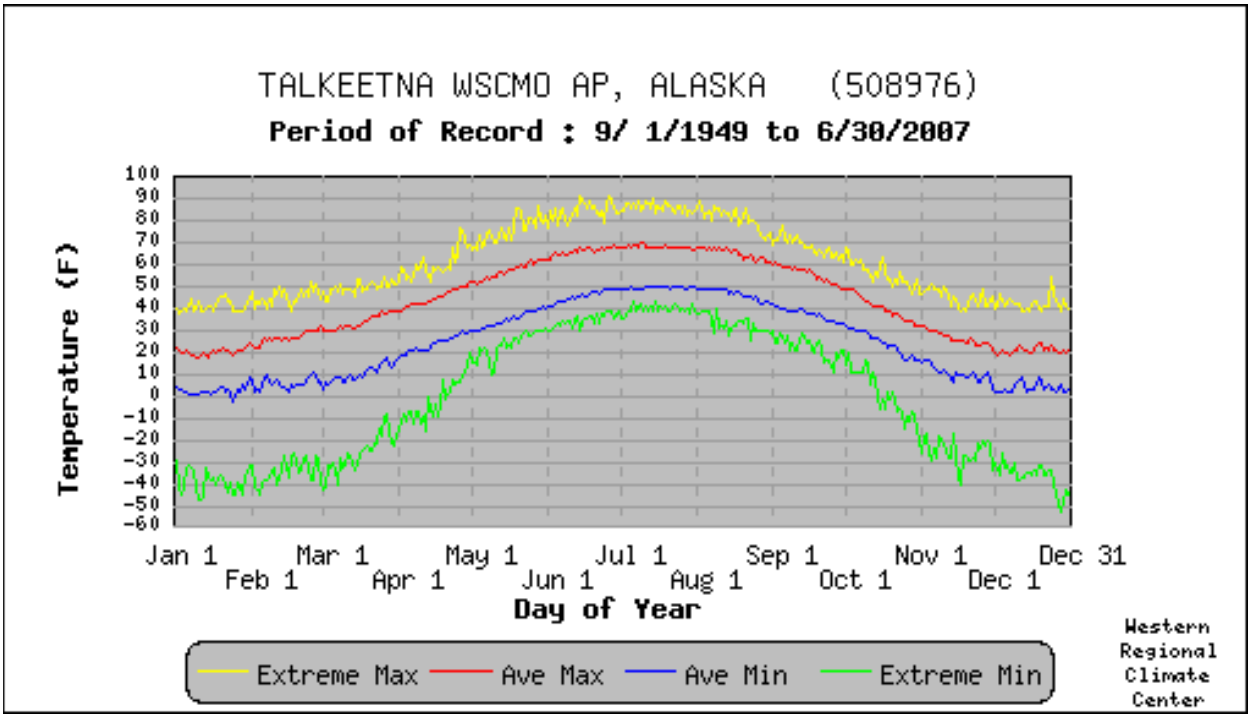

CANTWELL 2 E, ALASKA (501243)
Period of Record : 11/1/1983 to 6/30/2007
Temperature (F)
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Nov 1
Dec 1
Dec 31
Day of Year
Extreme Max
Ave Max
Ave Min
Extreme Min
Western Regional Climate Center

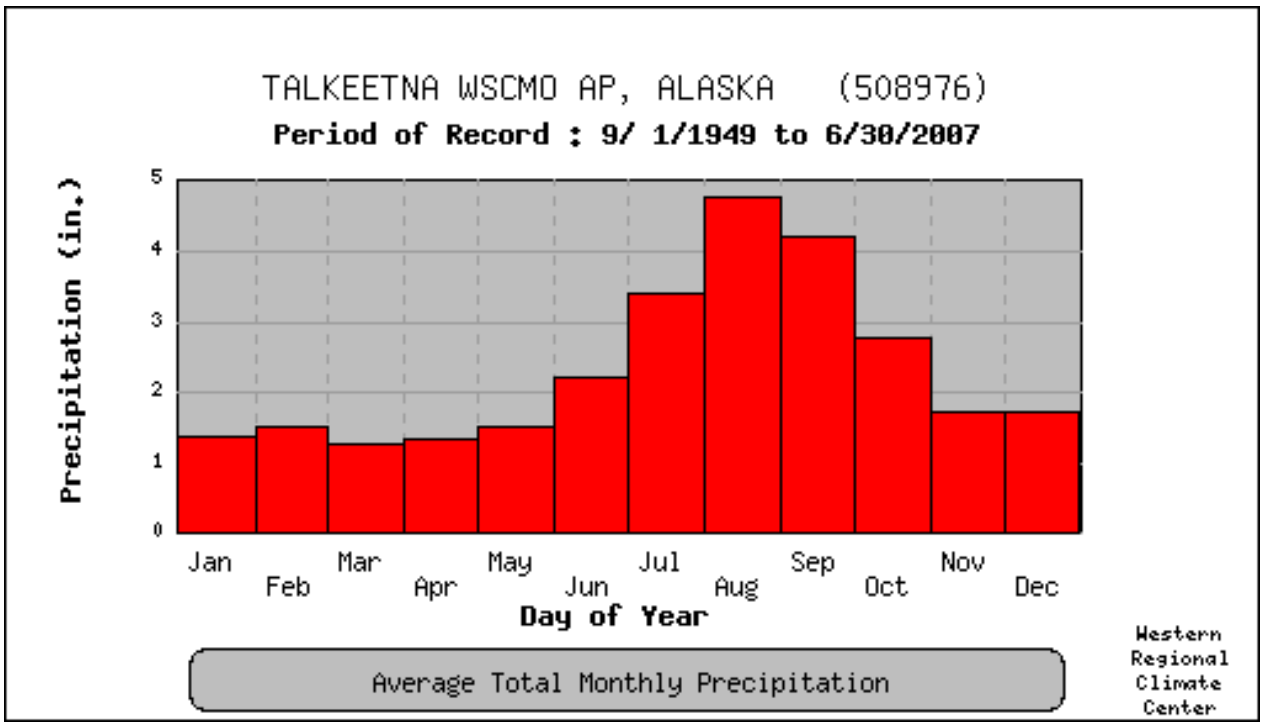

CANTWELL 2 E, ALASKA (501243)
Period of Record : 11/1/1983 to 6/30/2007
Precipitation (in.)
3.5
3
2.5
2
1.5
1
0.5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of Year
Average Total Monthly Precipitation
Western Regional Climate Center

Talkeetna Period of Record Monthly Climate Summary

Period of Record : 9/ 1/1949 to 6/30/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	19.7	26.1	33.5	44.7	56.8	65.8	68.0	64.7	55.5	39.9	26.1	20.4	43.4
Average Min. Temperature (F)	1.9	5.7	9.8	23.4	34.7	45.2	49.6	46.3	37.2	24.0	9.8	3.4	24.3
Average Total Precipitation (in.)	1.38	1.49	1.27	1.35	1.53	2.25	3.40	4.77	4.21	2.77	1.73	1.72	27.88
Average Total SnowFall (in.)	18.6	20.0	17.1	9.2	0.9	0.0	0.0	0.0	1.2	11.6	19.2	22.8	120.6
Average Snow Depth (in.)	27	30	31	18	2	0	0	0	0	2	8	17	11

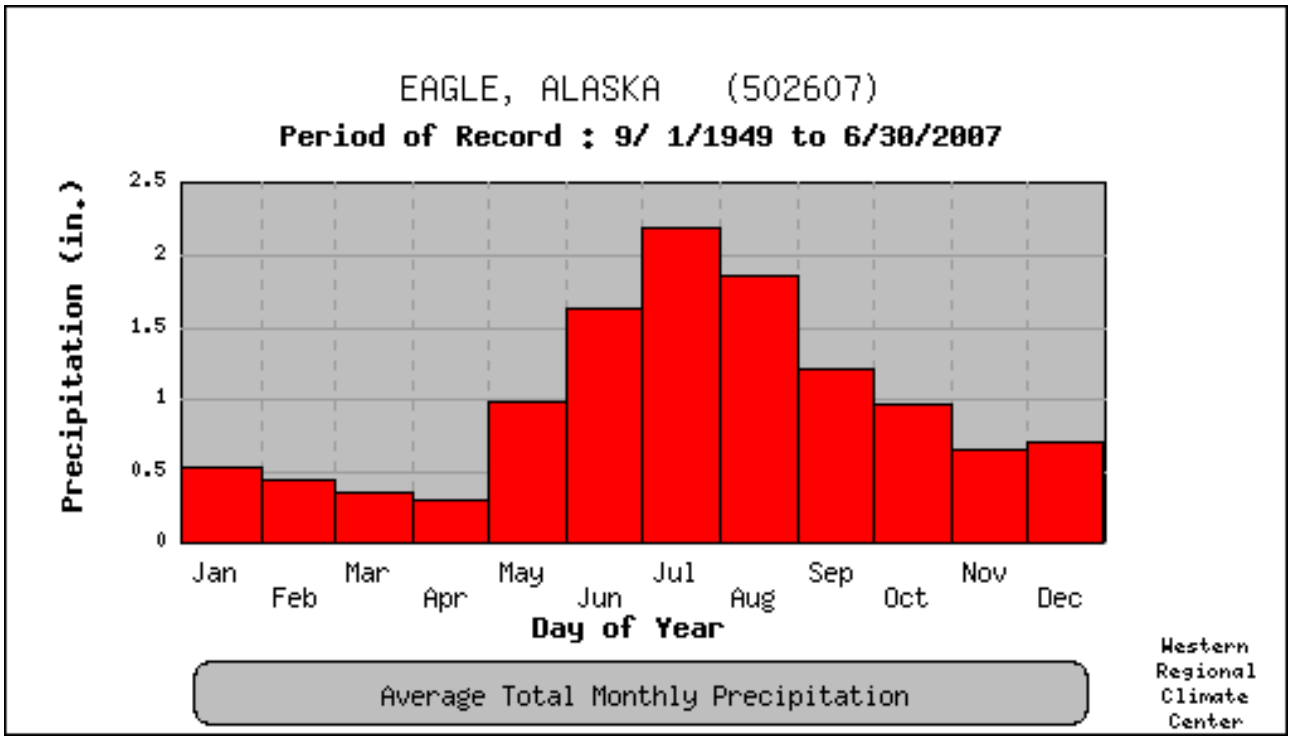


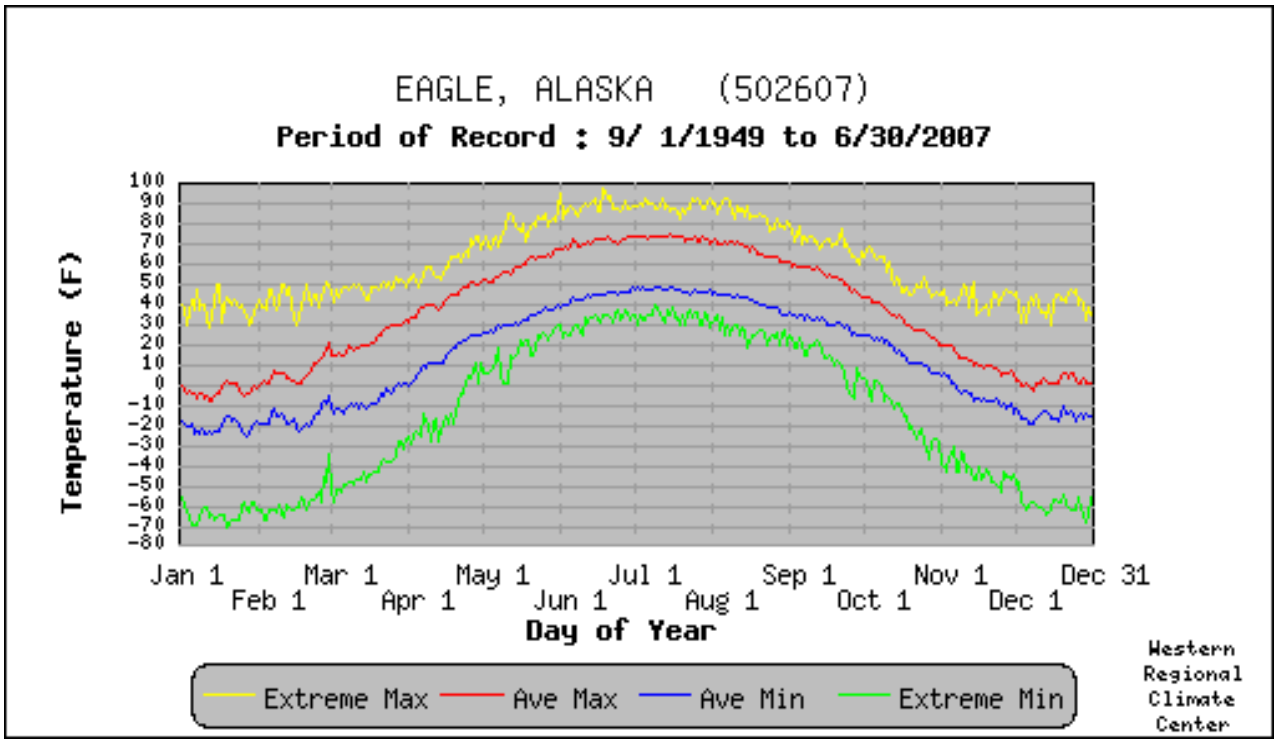


Eagle Period of Record Monthly Climate Summary

Period of Record : 9/ 1/1949 to 6/30/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	-3.6	5.1	22.1	42.0	59.0	70.8	72.8	66.8	53.7	32.2	11.2	1.3	36.1
Average Min. Temperature (F)	-21.4	-17.1	-8.0	14.0	31.8	43.7	47.0	41.1	30.6	15.1	-5.3	-15.7	13.0
Average Total Precipitation (in.)	0.53	0.43	0.36	0.31	0.99	1.65	2.21	1.87	1.24	0.97	0.67	0.71	11.94
Average Total SnowFall (in.)	7.8	6.9	5.3	3.1	0.8	0.0	0.0	0.0	0.9	9.6	10.7	11.5	56.7
Average Snow Depth (in.)	17	20	21	13	0	0	0	0	0	2	8	13	8

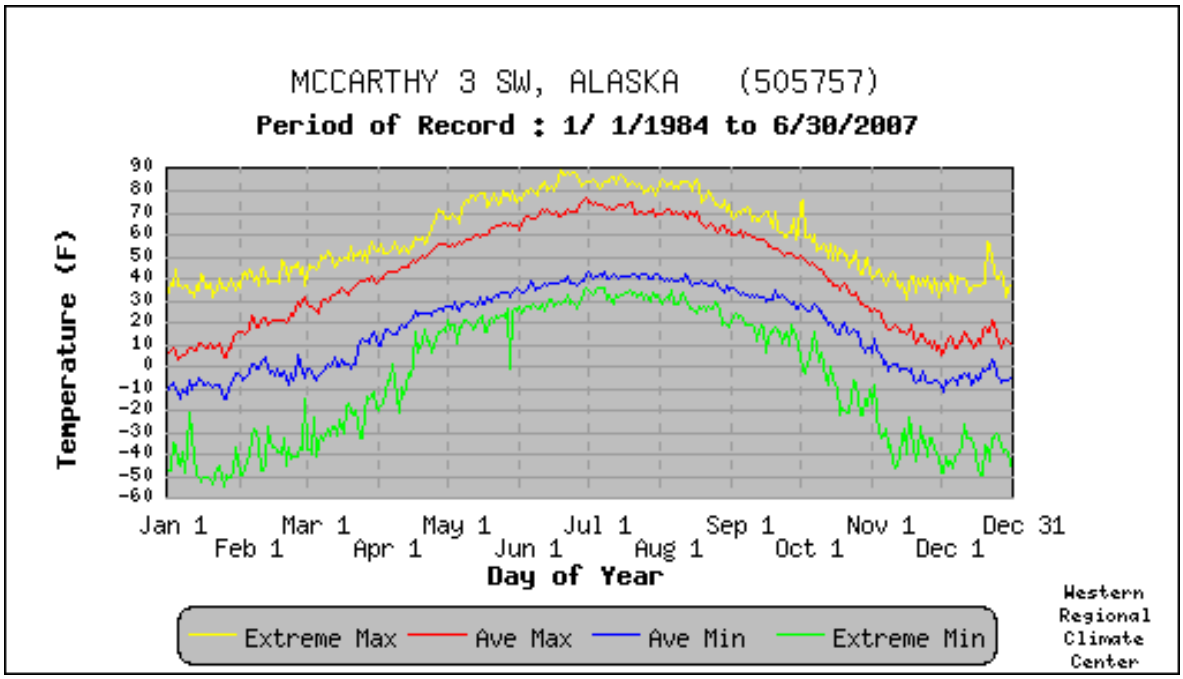

EAGLE, ALASKA (502607)
Period of Record : 9/ 1/1949 to 6/30/2007
Precipitation (in.)
2.5
2
1.5
1
0.5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of Year
Average Total Monthly Precipitation
Western Regional Climate Center

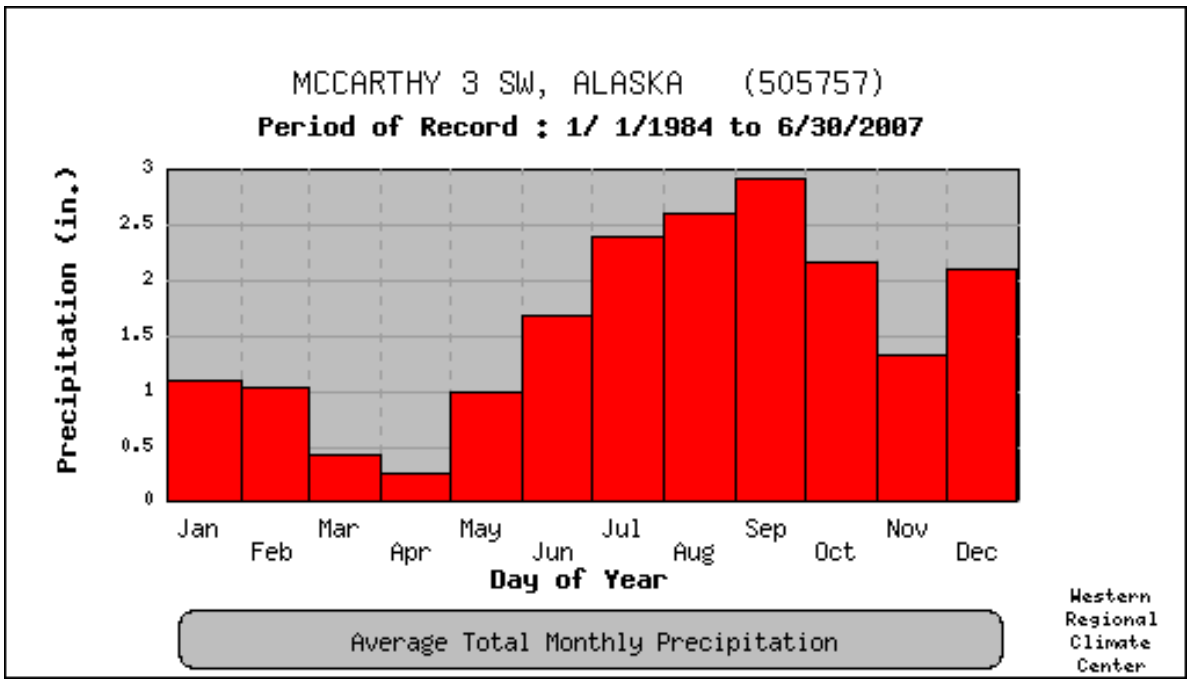

EAGLE, ALASKA (502607)
Period of Record : 9/ 1/1949 to 6/30/2007
Temperature (F)
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Nov 1
Dec 1
Dec 31
Day of Year
Extreme Max
Ave Max
Ave Min
Extreme Min
Western Regional Climate Center

McCarthy Period of Record Monthly Climate Summary

Period of Record : 1/ 1/1984 to 6/30/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	8.4	21.0	33.1	47.3	59.9	69.3	71.7	66.7	55.6	37.9	16.0	12.6	41.6
Average Min. Temperature (F)	-8.9	-2.1	2.9	20.2	29.7	37.4	41.1	38.0	31.0	18.7	-1.7	-4.1	16.9
Average Total Precipitation (in.)	1.14	1.04	0.42	0.26	1.01	1.68	2.37	2.60	2.94	2.19	1.37	1.99	19.0
Average Total SnowFall (in.)	12.6	8.9	5.0	2.4	0.2	0.0	0.0	0.0	2.8	9.9	13.6	12.6	68.2
Average Snow Depth (in.)	17	22	23	13	0	0	0	0	0	2	8	13	8

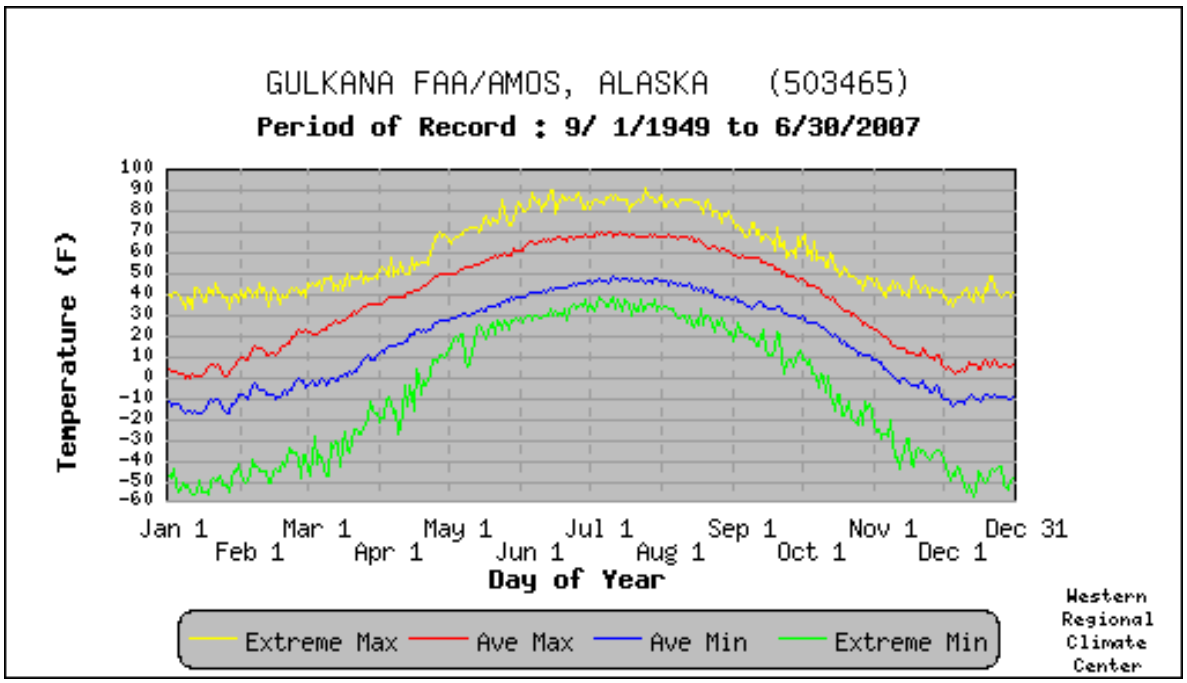


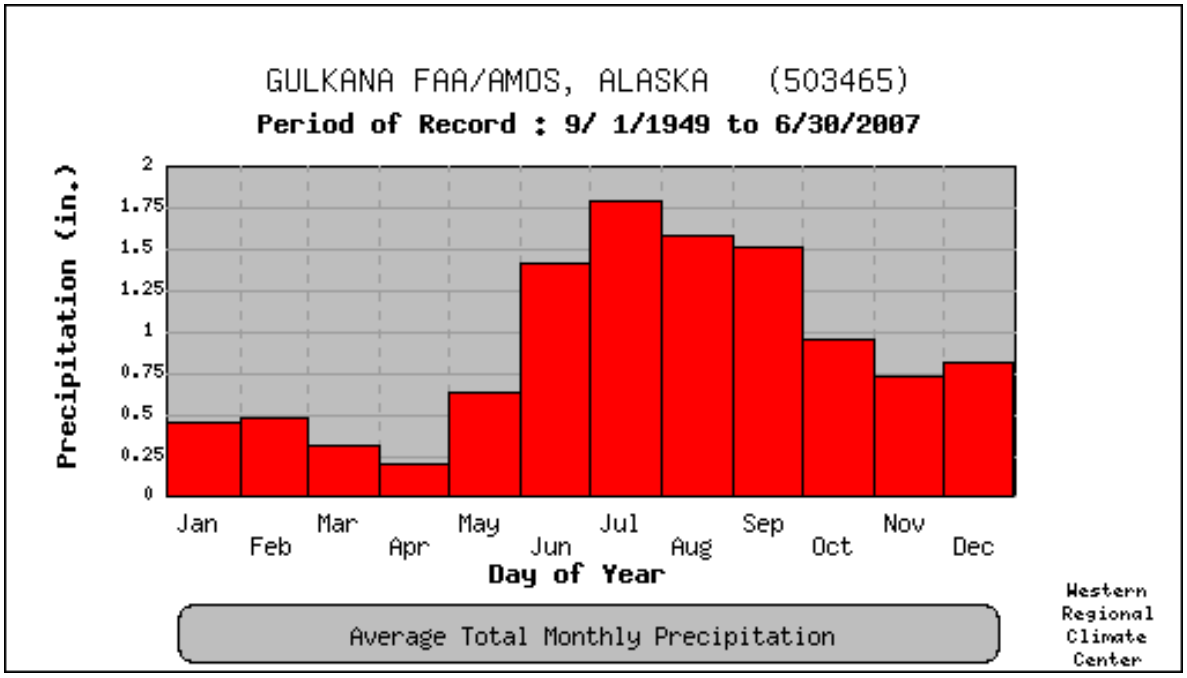


Gulkana Period of Record Monthly Climate Summary

Period of Record : 9/ 1/1949 to 6/30/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	2.6	14.2	27.9	42.3	55.5	65.7	68.5	64.8	53.8	35.2	13.9	5.1	37.4
Average Min. Temperature (F)	-14.1	-6.8	1.5	19.7	32.8	42.3	46.3	42.3	33.2	18.6	-1.5	-10.7	17.0
Average Total Precipitation (in.)	0.46	0.49	0.31	0.20	0.65	1.42	1.80	1.60	1.54	0.96	0.73	0.83	10.99
Average Total SnowFall (in.)	7.1	7.6	5.0	2.6	0.5	0.0	0.0	0.1	1.1	8.0	8.9	10.3	51.2
Average Snow Depth (in.)	14	16	14	5	0	0	0	0	0	2	6	11	6


GULKANA FAA/AMOS, ALASKA (503465)
Period of Record : 9/ 1/1949 to 6/30/2007
Temperature (F)
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Nov 1
Dec 1
Dec 31
Day of Year
Extreme Max
Ave Max
Ave Min
Extreme Min
Western Regional Climate Center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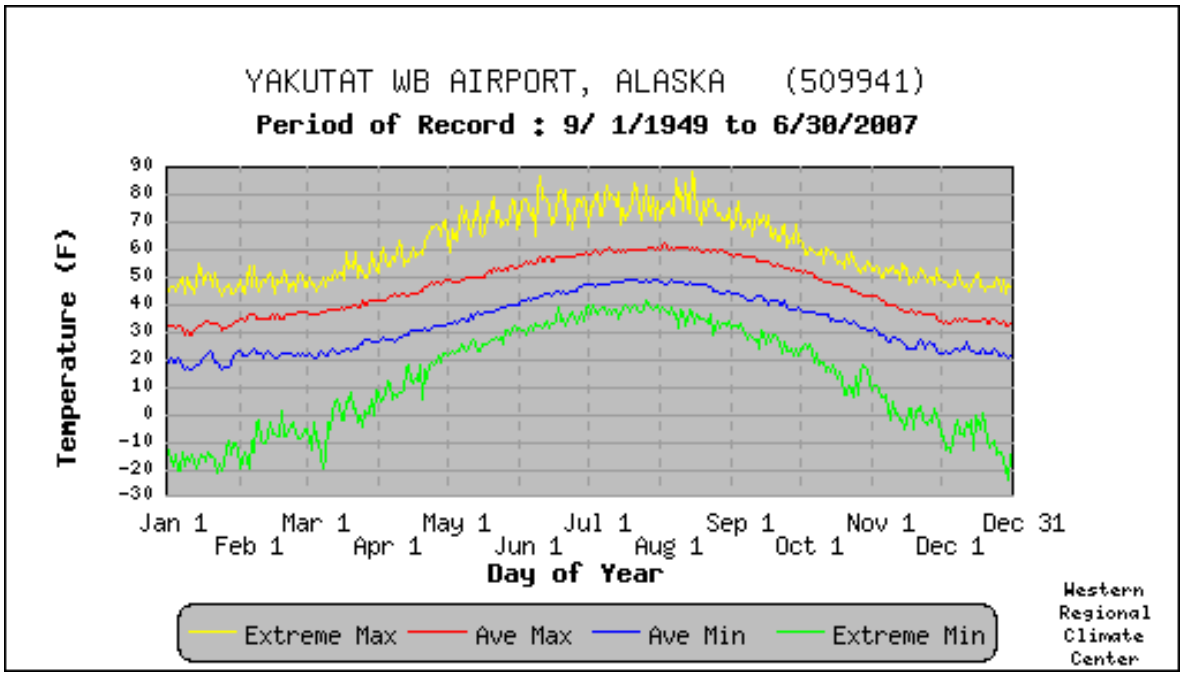
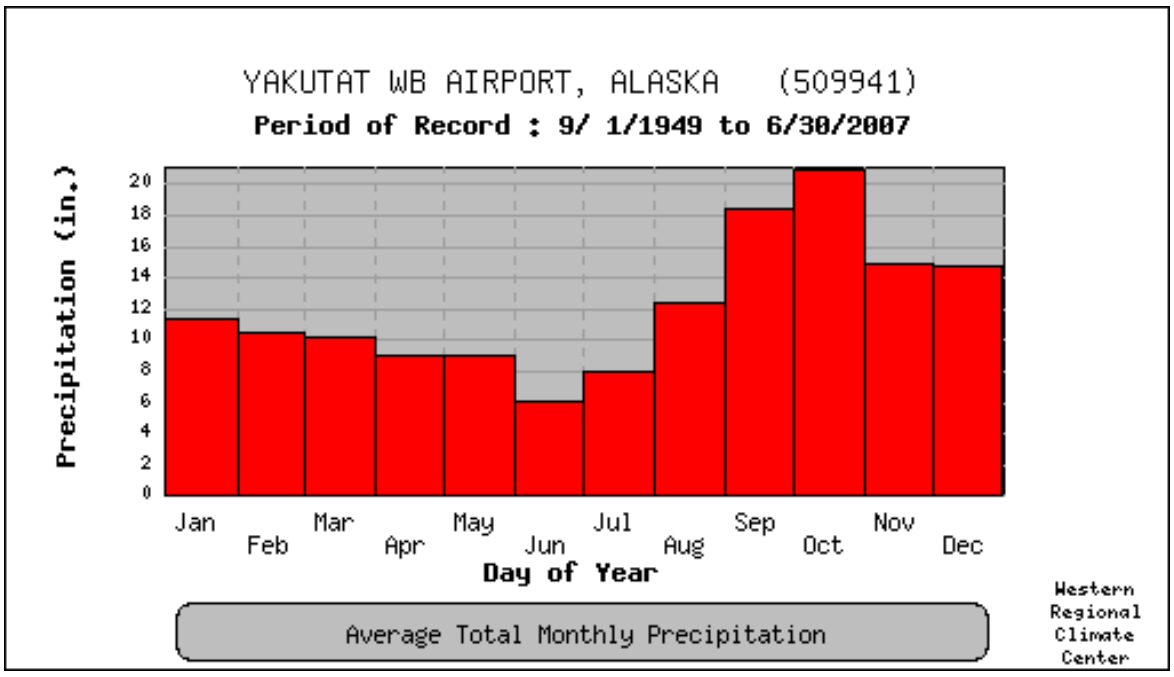
Period of Record : 9/ 1/1949 to 6/30/2007
Precipitation (in.)
2
1.75
1.5
1.25
1
0.75
0.5
0.25
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of Year
Average Total Monthly Precipitation
Western Regional Climate Center

Yakutat Period of Record Monthly Climate Summary

Period of Record : 9/ 1/1949 to 6/30/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	31.6	35.5	38.4	44.5	50.8	56.5	59.8	60.2	55.4	47.3	38.3	33.9	46.0
Average Min. Temperature (F)	18.7	21.7	23.2	29.3	36.5	43.7	48.0	46.7	41.1	34.4	26.2	22.5	32.7
Average Total Precipitation (in.)	11.34	10.42	10.25	9.06	8.94	5.99	8.03	12.33	18.34	20.96	14.88	14.72	145.3
Average Total SnowFall (in.)	35.1	35.3	36.8	15.4	1.1	0.0	0.0	0.0	0.0	4.9	21.9	36.3	186.7
Average Snow Depth (in.)	14	16	20	10	1	0	0	0	0	0	3	9	6

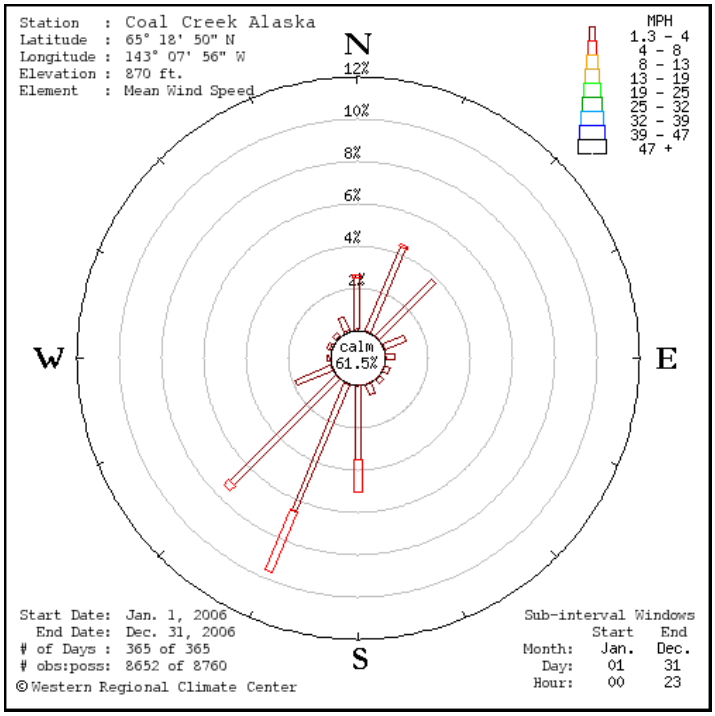



YAKUTAT WB AIRPORT, ALASKA (509941)
Period of Record : 9/ 1/1949 to 6/30/2007
Precipitation (in.)
0
2
4
6
8
10
12
14
16
18
20
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of Year
Average Total Monthly Precipitation
Western Regional Climate Center

Appendix B: CAKN Climate Station Monthly Data

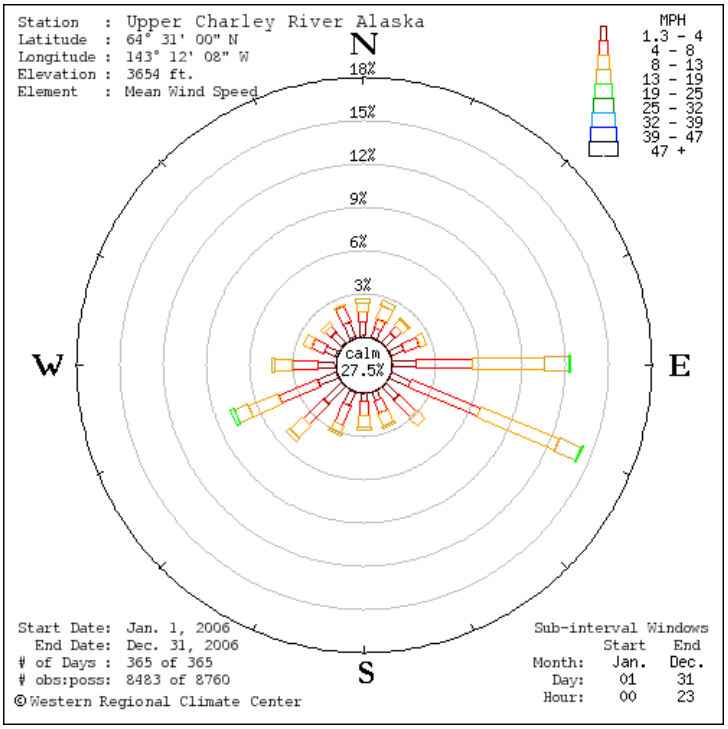
Coal Creek Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Soil Temperature - 20 Inches			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	39	0	1	4	0	19	-24	27	32	17	74	90	56	18
02/2006	884	2	354	14	6	23	-18	20	24	17	73	100	34	20
03/2006	4963	2	210	10	6	16	-10	18	20	16	66	92	25	21
04/2006	9768	3	217	11	22	32	12	22	26	19	62	96	21	20
05/2006	13037	2	247	11	45	88	22	30	30	26	56	100	17	1
06/2006	11652	2	203	12	58	99	23	31	31	30	59	99	11	0
07/2006	10964	1	200	12	59	81	42	31	31	30	67	97	22	0
08/2006	8005	1	212	9	51	73	28	32	32	31	77	98	26	0
09/2006	4100	1	336	9	46	70	28	32	32	31	75	99	20	0
10/2006	1585	1	8	11	28	60	-9	31	32	31	84	99	41	1
11/2006	95	1	149	10	-16	23	-42	31	31	31	74	96	62	5
12/2006	4	0	124	8	-5	29	-29	30	31	25	81	93	67	7



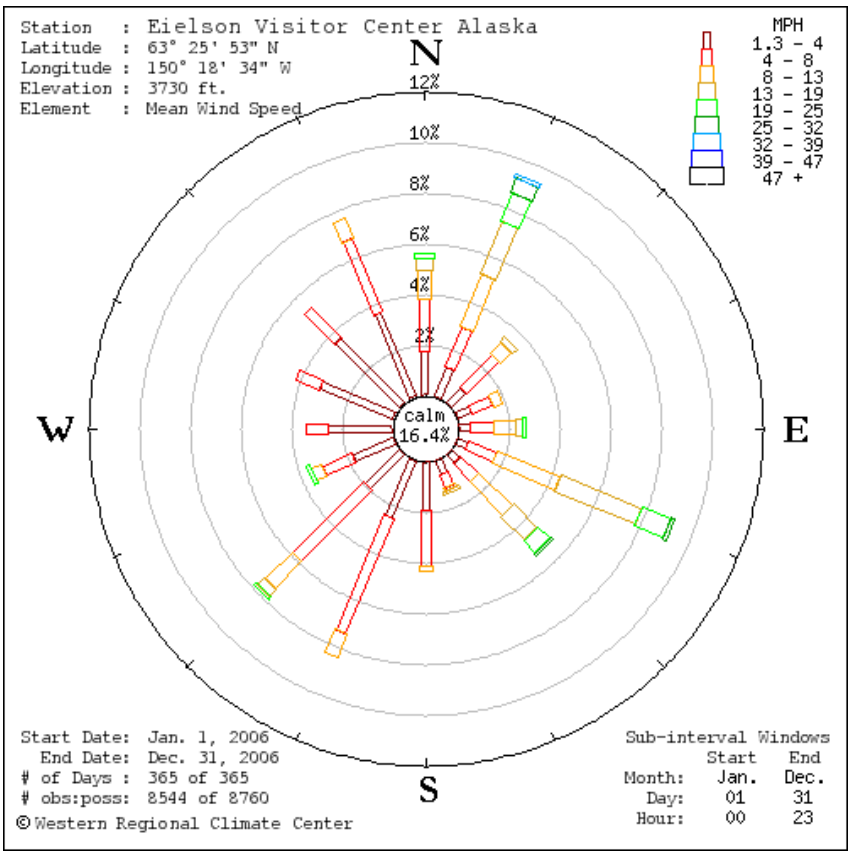
Upper Charley River Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Soil Temperature - 20 Inches			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	150	0	4	0	-8	12	-32	23			84	94	69	10
02/2006	1774	7	125	33	6	28	-24	20			84	100	36	15
03/2006	7000	6	57	24	1	27	-26	19			71	99	29	16
04/2006	12197	5	62	35	21	38	-4	22			67	97	26	16
05/2006	15287	6	58	30	40	62	18	29			62	100	17	6
06/2006	12424	6	233	29	49	70	21	36			48	100	0	2
07/2006	12620	6	250	26	52	69	40	43			65	98	25	0
08/2006	8283	5	174	28	45	61	33	42			70	100	0	0
09/2006	5247	7	134	20	41	57	26	38			11	64	0	8
10/2006	2748	6	126	26	24	43	2	32			32	100	0	8
11/2006	455	4	92	54	-8	17	-26	24			33	100	0	10
12/2006	66	5	106	24	9	25	-12	21			51	100	1	12



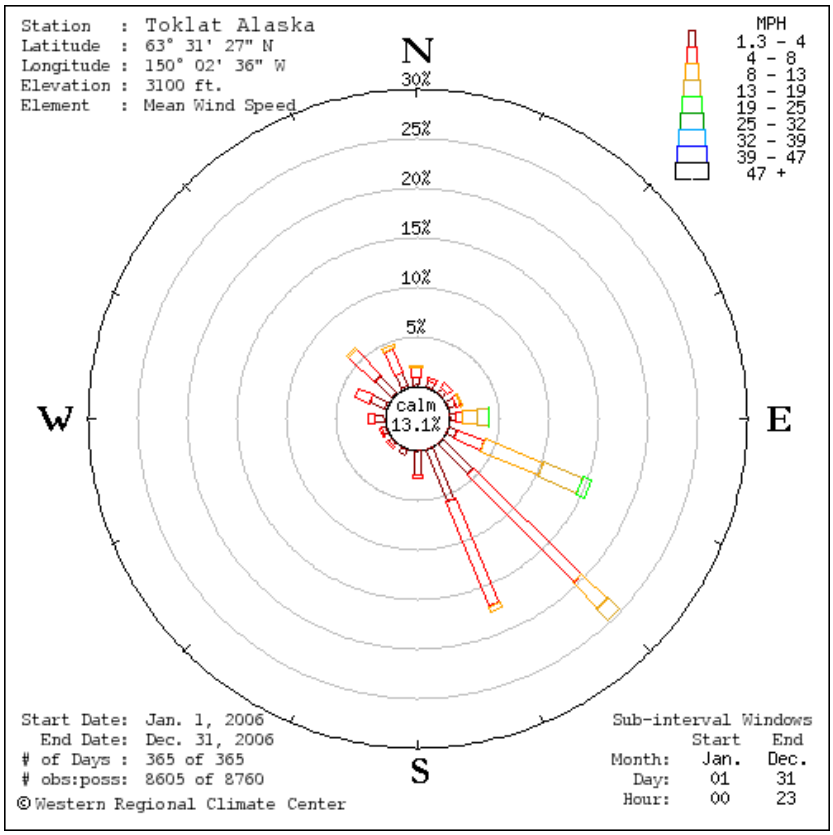
Eielson Visitor Center Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Relative Humidity		
Date	ly	mph	Deg	mph	Deg F			%		
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.
01/2006	537	6	316	60	7	31	-31	57	90	14
02/2006	1800	10	162	39	17	45	-28	63	98	12
03/2006	7111	7	342	32	15	32	-18	53	93	8
04/2006	12241	5	351	31	23	36	4	66	97	27
05/2006	14653	6	174	26	40	61	25	60	99	11
06/2006	13160	6	198	30	46	60	21	68	100	27
07/2006	11037	5	209	23	50	65	37	76	100	35
08/2006	7801	4	203	21	44	58	32	82	100	39
09/2006	5774	6	160	33	42	57	20	71	100	19
10/2006	2892	6	16	39	30	53	0	68	100	14
11/2006	909	7	339	39	9	35	-22	52	95	11
12/2006	164	6	348	35	15	39	-10	64	99	9



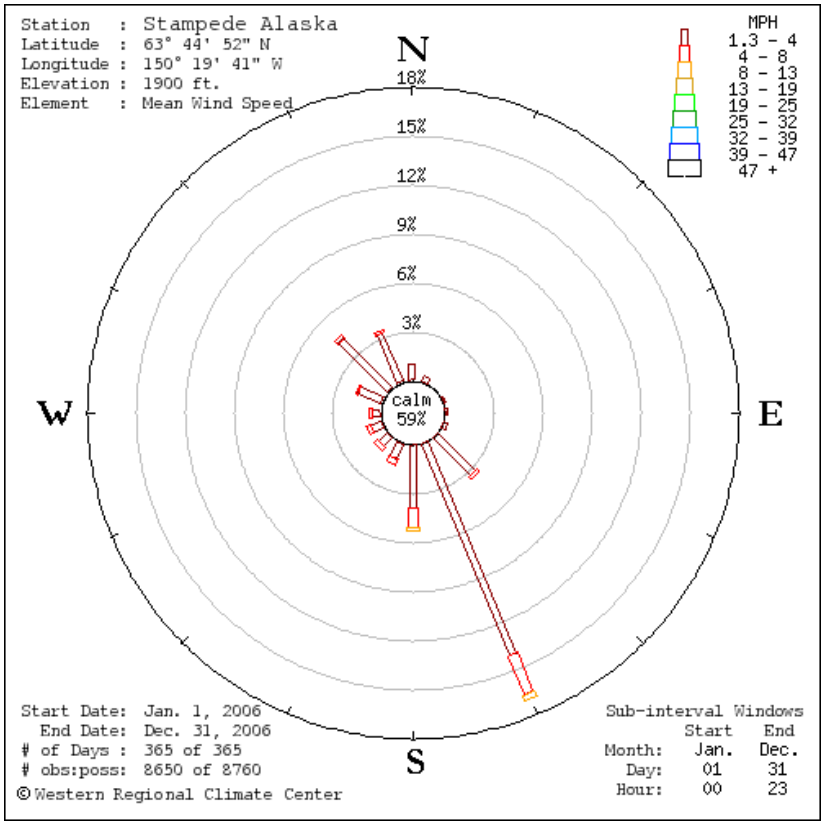
Toklat Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	403	4.2	154	16	-3.7	31	-38	71	91	40	5
02/2006	1628	8.5	126	40	16.2	43	-28	63	97	19	6
03/2006	6230	5.6	141	27	7.4	32	-25	65	94	19	9
04/2006	10147	5.2	133	27	23.0	39	-8	67	97	32	9
05/2006	13323	5.4	129	25	40.6	63	20	61	99	20	2
06/2006	12410	5.9	127	27	48.1	60	25	62	98	25	1
07/2006	10409	4.4	122	19	51.1	66	39	73	98	32	4
08/2006	7610	4.3	133	20	45.7	61	31	78	99	40	4
09/2006	4601	5.8	136	31	42.7	59	18	71	100	24	3
10/2006	2629	6.3	140	34	29.8	52	-2	71	100	26	1
11/2006	763	4.8	150	41	-1.6	28	-24	71	92	18	4
12/2006	141	5.0	153	32	11.6	40	-15	71	98	12	2



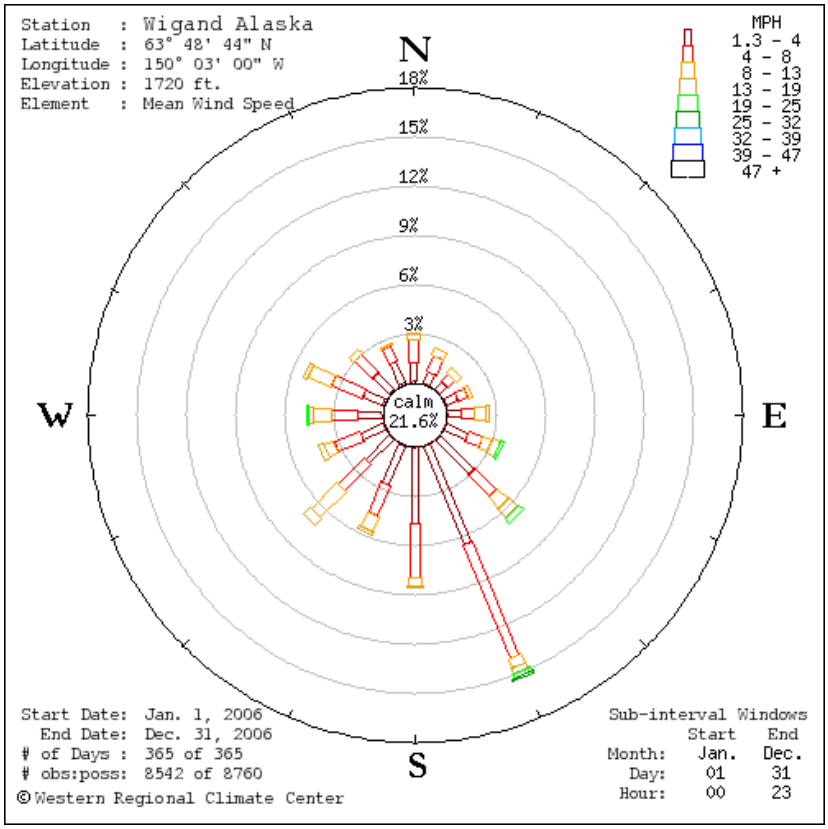
Stampede Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	201	0	279	2	-18	11	-42	71	88	45	4
02/2006	1379	2	175	18	13	47	-39	68	96	28	6
03/2006	5232	2	178	13	3	40	-38	65	95	22	11
04/2006	10644	2	168	9	24	48	-15	63	98	26	12
05/2006	13889	2	163	15	45	73	12	57	99	15	1
06/2006	13070	2	175	17	52	70	19	61	99	21	0
07/2006	9605	1	173	13	54	75	37	77	99	27	0
08/2006	7097	1	175	12	48	66	28	84	99	30	0
09/2006	4624	1	153	13	44	65	22	76	100	27	0
10/2006	2091	1	161	20	29	64	-13	83	99	29	1
11/2006	323.2	1	208	9	-10	19	-32	78	95	64	5
12/2006	154	1	201	11	-1	37	-28	83	94	44	11



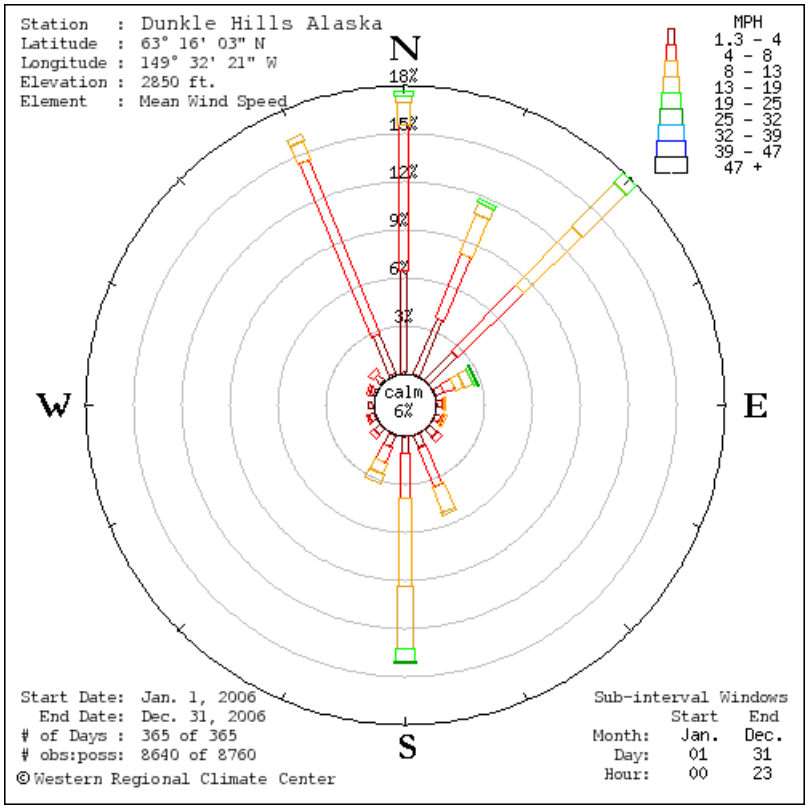
Wigand Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Soil Temperature – 4 Inches			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	301	1	9	9	-16	8	-40	m	m	m	78	90	58	0
02/2006	1768	8	178	42	14	47	-37	m	m	m	71	97	27	0
03/2006	6118	4	196	19	2	32	-34	m	m	m	73	96	32	3
04/2006	11666	5	186	26	23	47	-8	m	m	m	69	98	32	4
05/2006	13652	7	206	23	45	71	17	m	m	m	58	99	17	0
06/2006	13660	7	233	29	53	68	19	46	51	42	61	98	20	0
07/2006	10336	5	207	20	54	73	34	47	53	42	73	100	27	0
08/2006	7972	5	227	21	48	65	28	44	50	34	81	100	32	0
09/2006	4911	6	173	29	45	65	21	40	46	32	64	99	m	3
10/2006	2595	5	172	44	29	63	-7	32	43	31	m	m	m	6
11/2006	327	0	360	7	-10	19	-31	27	31	23	M	M	m	8
12/2006	176	4	163	35	2	38	-28	24	31	21	m	m	m	8



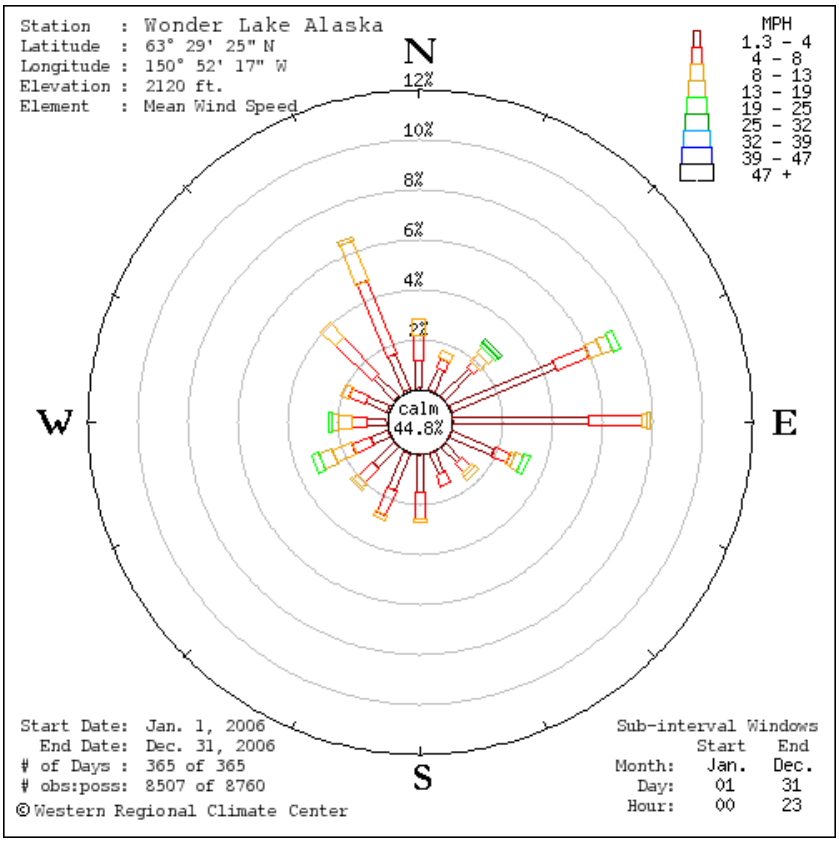
Dunkle Hills Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Soil Temperature - 5 Inches			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	913	8	8	28	-1	26	-27	26	29	21	75	93	50	21
02/2006	2055	8	23	37	10	38	-25	24	27	21	78	96	40	20
03/2006	7818	8	17	37	6	31	-24	22	24	19	68	93	25	20
04/2006	12826	7	16	30	21	38	-6	26	27	23	74	96	43	23
05/2006	16890	7	1	25	37	64	19	32	41	27	68	97	20	9
06/2006	13916	8	174	29	46	67	24	44	51	35	69	98	19	0
07/2006	12817	6	153	24	51	69	37	51	57	45	78	97	25	0
08/2006	7743	5	133	29	45	61	29	47	54	0	84	97	38	0
09/2006	5369	5	38	24	41	58	19	42	48	34	79	97	34	0
10/2006	2733	5	12	32	26	44	1	33	34	32	85	97	52	10
11/2006	1753	11	20	35	3	29	-16	29	32	22	62	90	24	12
12/2006	295	6	26	33	13	33	-13	24	27	0	78	94	38	11



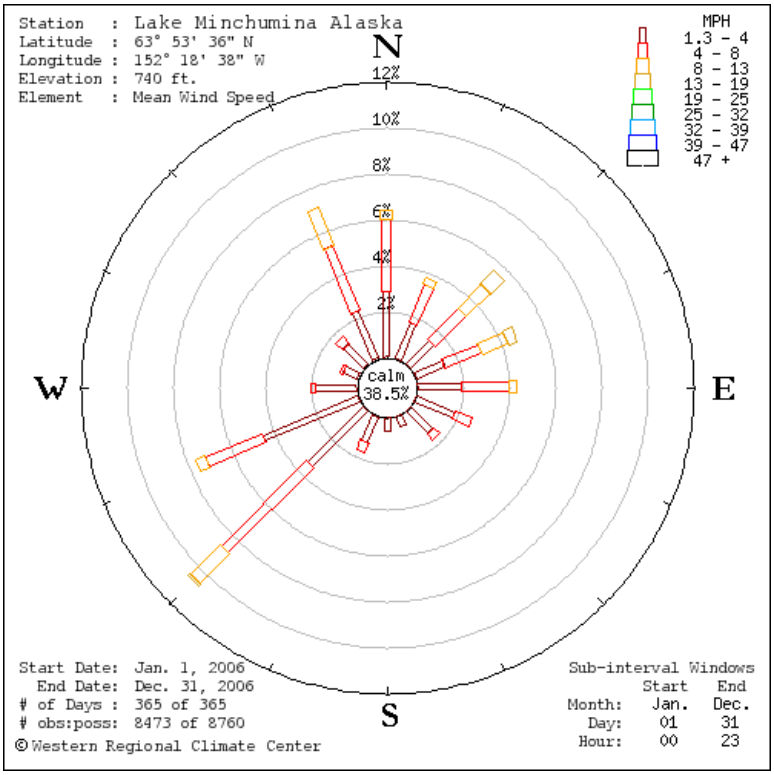
Wonder Lake Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Ave Fuel Temp			Average Relative Humidity			Precipitation
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Total
01/2006	m	1	74	m	-11	16	-39	-12	16	-41	61	88	44	0
02/2006	m	7	109	m	15	48	-33	14	47	-34	59	100	28	0
03/2006	m	5	23	m	8	40	-27	9	47	-29	52	94	14	0
04/2006	m	4	28	m	25	51	-6	26	64	-8	56	100	18	0
05/2006	m	5	74	m	44	72	16	46	80	14	55	100	14	1
06/2006	m	5	360	m	51	71	20	53	80	18	62	100	19	3
07/2006	m	1	2	m	55	78	38	57	88	36	77	100	29	5
08/2006	m	0	354	m	48	66	27	49	76	25	86	100	40	5
09/2006	m	0	42	m	44	65	23	45	74	20	77	100	27	1
10/2006	m	3	78	m	33	65	13	33	69	11	79	100	34	0
11/2006	566	3	46	31	-4	26	-24	-5	26	-27	64	95	40	0
12/2006	141	3	83	37	4	36	-19	3	35	-22	69	100	16	0



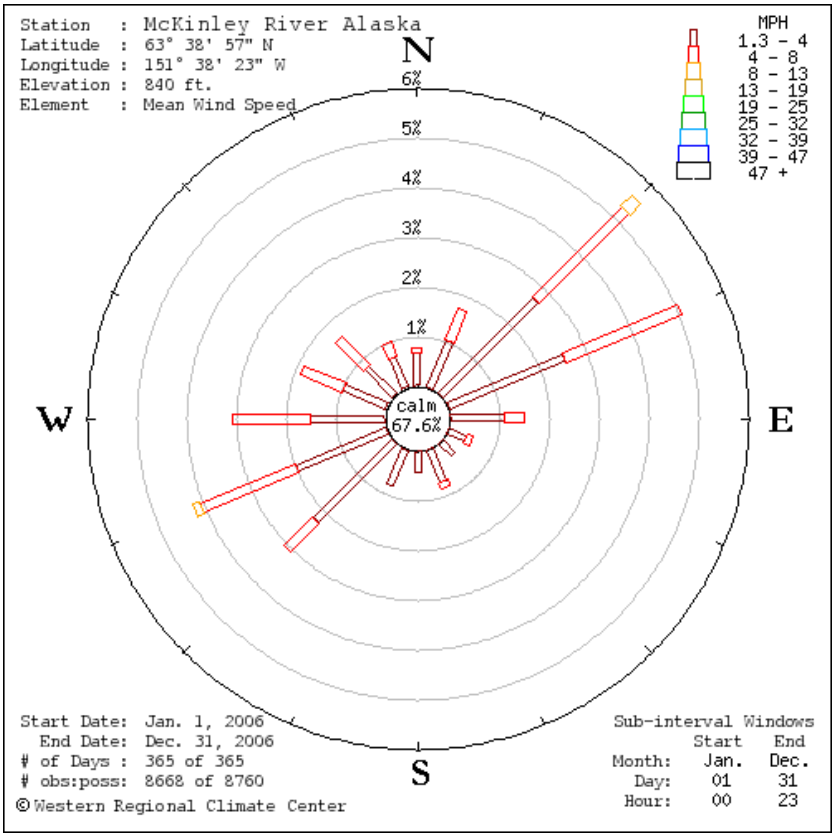
Lake Minchumina Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Ave Fuel Temp			Average Relative Humidity			Precipitation
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Total
01/2006	83	1	1	20	-19	7	-48	-19	8	-44	77	93	59	0
02/2006	1077	3	282	34	10	36	-37	9	28	-39	81	100	47	0
03/2006	4413	6	29	34	9	35	-30	9	24	-20	61	97	19	0
04/2006	10764	4	8	23	30	54	3	28	64	10	58	100	23	0
05/2006	14436	3	316	21	51	81	24	53	94	18	50	99	13	1
06/2006	12843	4	255	25	57	79	23	58	93	16	59	99	20	2
07/2006	11679	3	240	22	61	84	47	60	98	42	71	99	23	3
08/2006	7209	2	274	19	53	72	35	52	75	31	83	99	34	5
09/2006	5905	2	314	25	48	69	26	47	71	23	78	99	33	1
10/2006	1712	3	288	35	32	61	3	31	59	-2	87	100	37	0
11/2006	349	4	22	35	-1	22	-21	-3	23	-26	77	97	47	0
12/2006	22	1	313	25	-1	23	-25	-1	22	-18	85	99	69	0



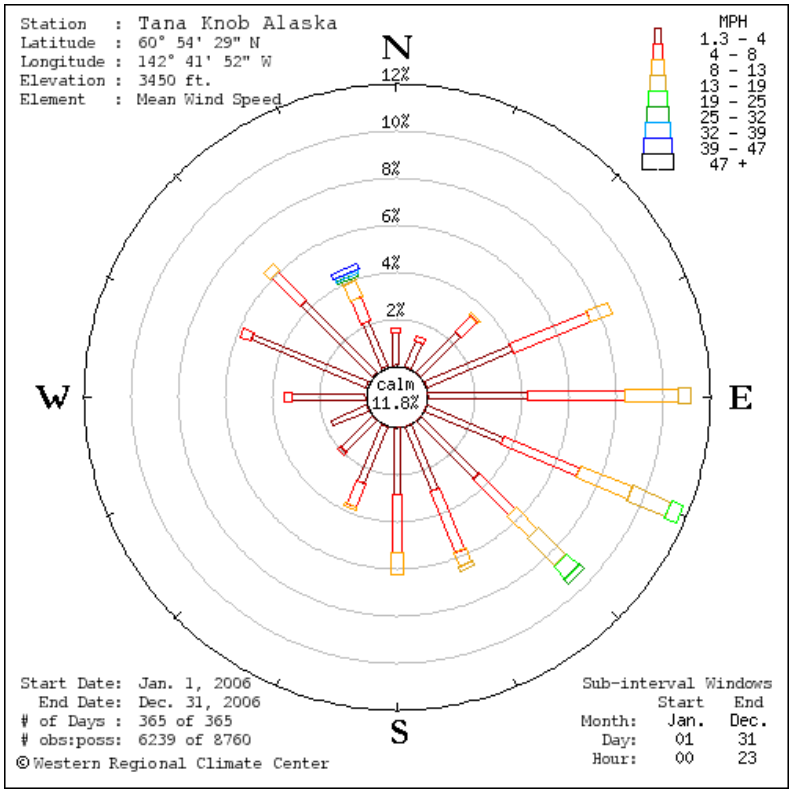
McKinley River Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Ave Fuel Temp			Average Relative Humidity			Snow Depth	Precipitation
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in	in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Total
01/2006	43	0	302	17	-20	8	-50	140	140	140	66	77	53	13	0
02/2006	516	1	189	25	8	41	-40	140	140	140	72	88	33	16	0
03/2006	3991	3	63	24	9	52	-40	140	140	140	56	84	14	19	0
04/2006	10596	2	63	19	31	64	-11	140	140	132	52	89	10	16	0
05/2006	13554	2	159	18	48	78	13	61	140	20	53	100	8	1	1
06/2006	10559	2	227	19	56	77	14	58	91	13	59	100	18	1	1
07/2006	9050	2	194	20	59	84	32	61	95	31	73	100	24	0	3
08/2006	5875	1	184	15	51	70	24	52	81	24	86	100	30	0	5
09/2006	4027	1	149	15	44	70	20	44	80	19	83	100	32	0	2
10/2006	1256	1	118	18	29	58	-7	28	55	-13	94	100	42	1	1
11/2006	122	0	94	21	-12	20	-36	-14	22	-39	75	97	57	5	0
12/2006	29	0	171	10	-5	21	-32	-3	20	-25	80	97	60	m	0



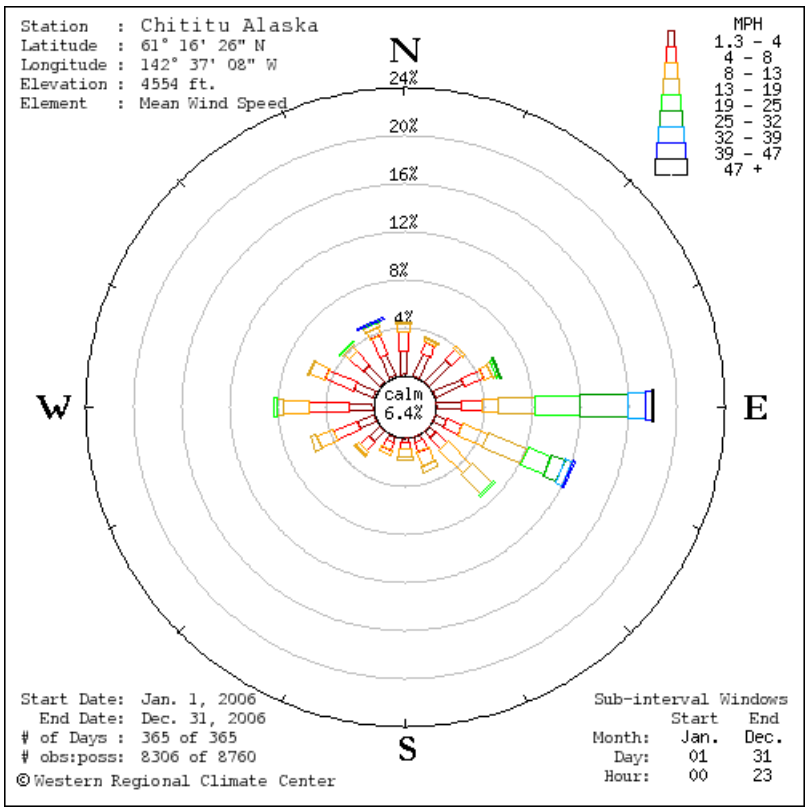
Tana Knob Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Soil Temperature - 20 Inches			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	881	4	335	30	6	26	-21	33	33	33	80	100	42	61
02/2006	2499	6	78	49	11	31	-13	33	33	33	89	100	25	72
03/2006	8348	5	28	54	8	34	-21	32	33	32	77	100	33	66
04/2006	12221	7	81	42	24	38	10	32	32	32	76	100	47	66
05/2006	16413	5	37	42	36	56	13	32	32	32	67	100	24	57
06/2006	17256	4	175	23	45	63	34	37	45	32	61	100	15	9
07/2006	12595	4	150	20	50	65	35	50	58	45	73	100	38	1
08/2006	8473	5	117	31	46	60	39	48	55	43	75	99	45	0
09/2006	4542	4	105	24	42	54	29	42	48	35	70	99	26	0
10/2006	470	7	100	24	36	41	29	36	37	35	81	99	63	m
11/2006	m	m	m	m	m	m	m	m	m	m	0	0	0	m
12/2006	m	m	m	m	m	m	m	m	m	m	m	m	m	m



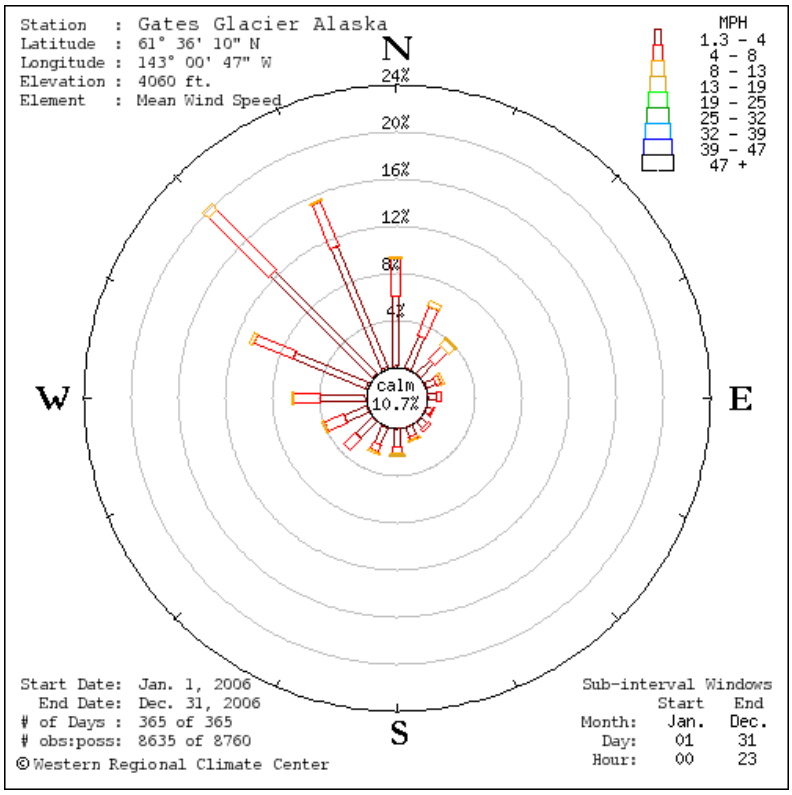
Chititu Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Ave Fuel Temp			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	910	9	59	53	11	28	-16	12	21	2	64	98	22	2
02/2006	2079	13	88	95	14	38	-11	13	28	0	71	100	13	2
03/2006	7591	8	9	52	10	31	-15	8	21	-7	62	100	19	2
04/2006	10290	11	84	64	22	34	9	20	31	12	71	100	39	3
05/2006	15219	9	345	48	35	56	21	36	73	22	64	100	22	2
06/2006	13047	7	231	33	43	63	27	45	77	26	67	100	19	2
07/2006	12847	6	272	30	47	63	34	51	108	28	74	100	36	2
08/2006	7413	10	120	51	42	55	37	44	83	28	79	98	49	m
09/2006	5175	9	93	49	39	50	25	38	72	14	75	100	28	m
10/2006	2321	16	93	65	29	49	0	30	45	20	75	100	20	m
11/2006	457	6	311	41	-3	31	-24	22	32	17	72	92	20	m
12/2006	362	15	81	74	19	35	1	17	25	7	65	97	23	m



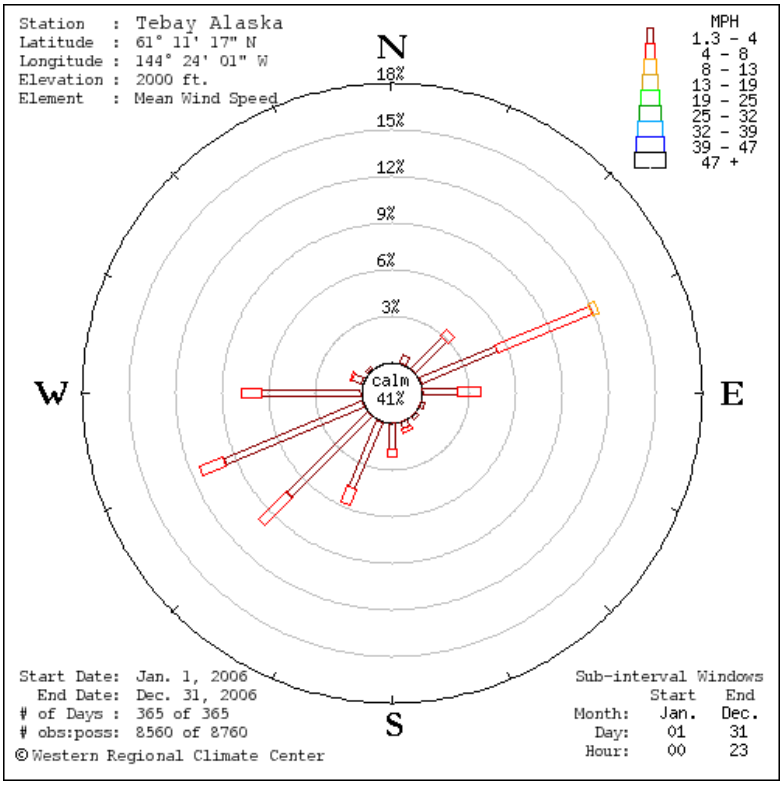
Gates Glacier Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Soil Temperature - 20 Inches			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	864	3	327	24	12	29	-17	m	m	m	65	97	22	43
02/2006	1690	4	325	40	14	37	-12	m	m	m	71	99	14	52
03/2006	8053	3	320	26	12	34	-16	m	m	m	59	96	24	52
04/2006	11248	4	328	27	23	54	5	m	m	m	73	100	34	56
05/2006	17802	4	301	37	36	57	20	m	m	m	62	100	22	45
06/2006	15063	4	289	24	45	63	30	m	m	m	65	100	12	2
07/2006	14668	3	281	20	49	64	36	52	64	45	68	100	32	2
08/2006	7638	3	317	22	43	56	35	46	59	39	77	100	38	4
09/2006	4629	3	312	30	40	51	26	40	51	34	69	99	22	3
10/2006	1887	3	337	24	29	47	6	33	35	32	79	99	27	13
11/2006	853	2	335	23	-1	28	-21	31	32	28	73	92	25	17
12/2006	415	4	334	36	21	37	1	30	32	29	65	97	16	23



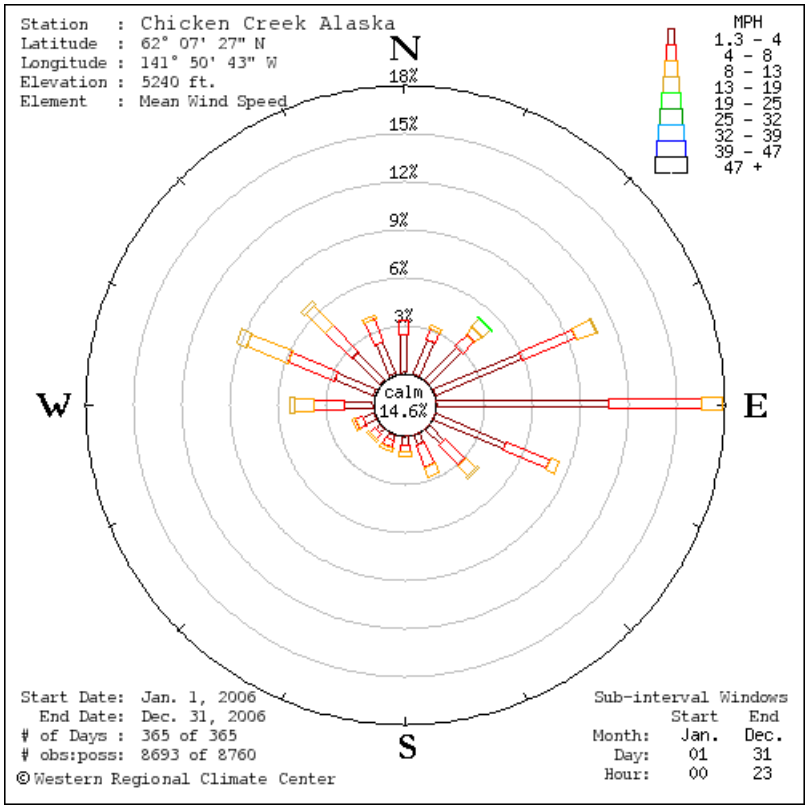
Tebay Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Soil Temperature - 20 Inches			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	67	1	17	19	-3	27	-27	65	75	62	85	100	69	43
02/2006	1927	2	90	20	11	36	-21	67	71	66	83	100	39	58
03/2006	7805	3	92	15	9	36	-23	65	67	62	67	100	30	60
04/2006	11145	2	169	16	27	40	-2	59	62	56	77	100	44	62
05/2006	16214	3	213	14	39	60	20	54	56	52	73	100	22	36
06/2006	14992	3	242	12	49	70	29	67	81	52	69	100	23	0
07/2006	13414	3	252	11	52	76	17	68	89	48	78	100	30	1
08/2006	7659	2	234	11	48	70	34	50	59	45	86	99	34	2
09/2006	4991	2	191	10	43	60	28	45	53	39	83	99	27	1
10/2006	1979	1	124	9	33	47	11	37	42	33	86	99	44	2
11/2006	749	3	67	12	-1	25	-24	30	33	26	74	95	50	6
12/2006	85	1	78	13	14	33	-8	28	30	26	90	100	71	20



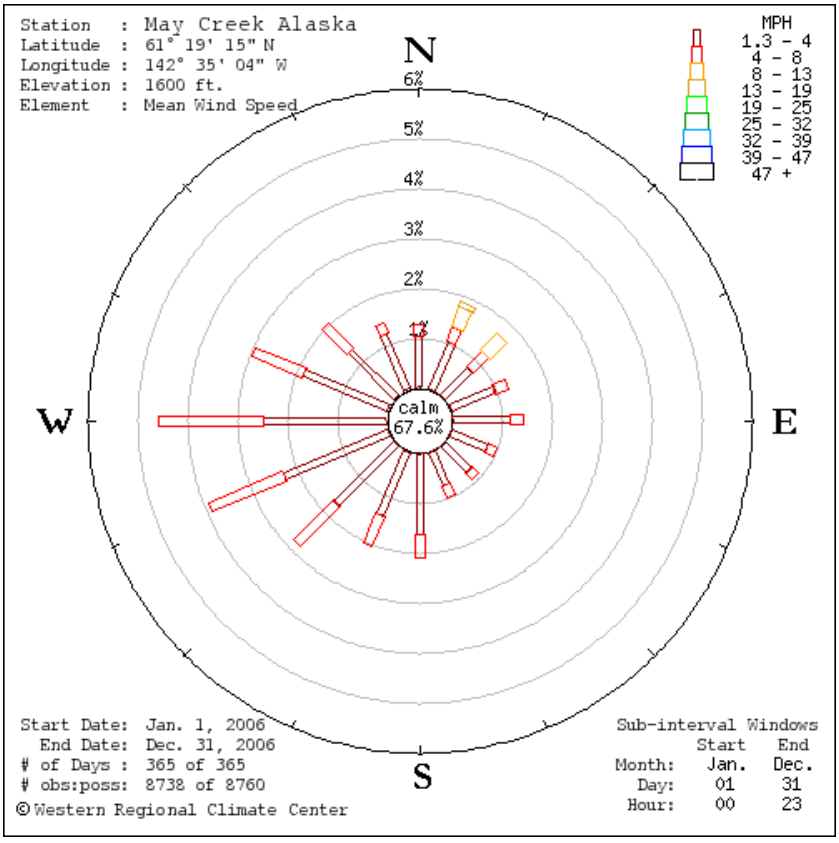
Chicken Creek Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Average Soil Temperature - 20 Inches			Average Relative Humidity			Snow Depth
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.
01/2006	827	3	64	30	7	24	-25	21	23	17	63	95	26	5
02/2006	2564	5	57	40	12	39	-16	18	19	17	56	99	7	4
03/2006	7840	3	69	31	5	28	-21	15	17	13	62	97	18	4
04/2006	12111	5	73	33	20	34	0	19	21	16	63	100	19	5
05/2006	15231	6	30	29	35	56	14	25	31	21	63	100	20	6
06/2006	13956	7	322	25	44	63	22	31	33	31	58	99	13	2
07/2006	13077	5	335	26	48	62	38	36	37	33	66	99	24	1
08/2006	9280	5	75	23	43	54	33	36	37	35	67	97	34	0
09/2006	5575	4	67	20	38	55	23	34	35	32	66	98	25	0
10/2006	3325	4	69	31	26	52	0	31	32	31	67	98	26	2
11/2006	1104	2	67	24	-6	20	-30	27	31	22	67	91	19	4
12/2006	397	4	66	31	13	29	-6	22	23	21	59	92	27	6



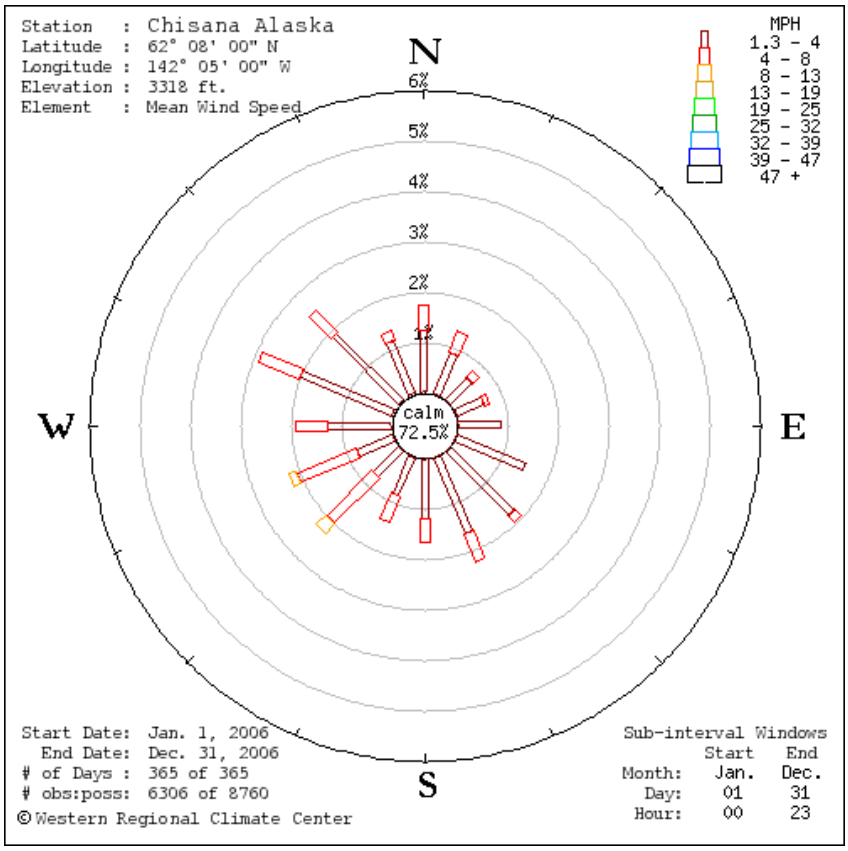
May Creek Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Ave Fuel Temp			Average Relative Humidity			Snow Depth	Precipitation
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in	in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Total
01/2006	334	0	88	20	-9	28	-39	1	20	-19	74	90	51	17	334
02/2006	1808	1	164	32	9	47	-38	12	31	-17	72	93	33	19	1808
03/2006	7810	2	164	31	11	53	-32	13	30	-10	55	87	19	19	7810
04/2006	11565	2	191	29	33	53	-4	31	63	8	56	92	20	18	11565
05/2006	15873	3	200	33	47	77	23	49	89	22	49	92	9	3	15873
06/2006	15873	2	217	20	54	81	25	57	96	24	55	93	11	1	15873
07/2006	16032	2	214	19	58	82	29	62	101	29	60	93	21	2	16032
08/2006	9464	1	190	16	51	76	27	53	92	26	72	93	27	2	9464
09/2006	6693	1	173	19	44	69	17	46	84	16	72	93	22	2	6693
10/2006	2901	1	173	16	32	53	3	32	68	1	78	92	36	2	2901
11/2006	828	0	160	25	-12	23	-40	-14	26	-42	71	87	37	5	828
12/2006	98	1	155	25	6	35	-22	5	31	-23	79	90	32	8	98



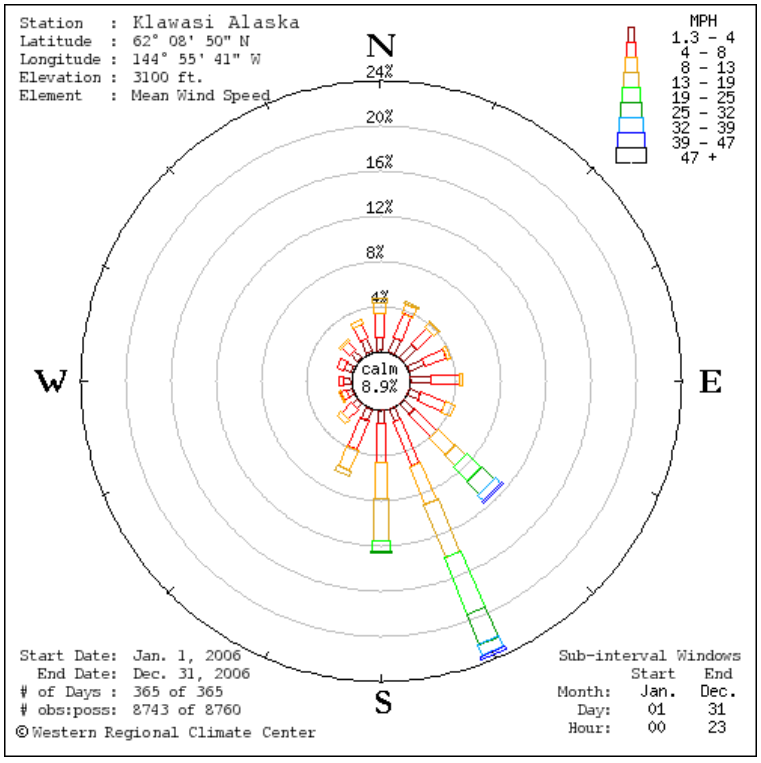
Chisana Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Ave Fuel Temp			Average Relative Humidity			Snow Depth	Precipitation
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in	in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Total
01/2006	179	0	338	12	-14	21	-43	-16	20	-46	70	92	51	7	179
02/2006	379	1	122	21	11	42	-23	7	44	-26	75	100	28	8	379
03/2006	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
04/2006	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
05/2006	3474	2	287	21	50	71	19	51	83	15	45	90	13	m	3474
06/2006	15038	2	282	22	51	79	19	52	90	14	54	100	10	m	15038
07/2006	14883	2	188	21	54	78	26	55	89	24	63	100	16	m	14883
08/2006	10510	2	146	21	48	73	22	48	81	20	67	100	23	m	10510
09/2006	5871	1	137	19	40	69	16	39	77	13	74	100	20	0	5871
10/2006	2399	1	126	29	24	62	-22	23	61	-26	76	100	27	4	2399
11/2006	363	0	130	7	-19	20	-43	-21	24	-47	63	89	46	5	363
12/2006	115	0	110	29	-5	28	-31	-8	22	-37	74	93	47	8	115



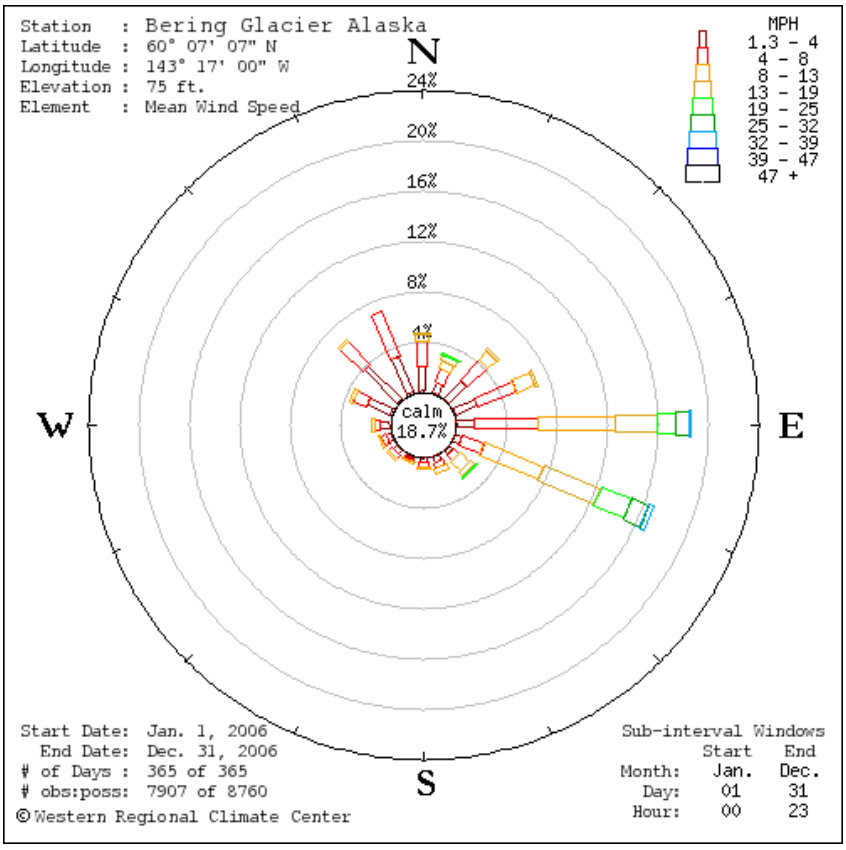
Klawasi Alaska

	Solar Radiation	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Ave Fuel Temp			Average Relative Humidity			Precipitation
Date	ly	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Total	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Total
01/2006	557	3	139	52	-1	32	-23	-3	29	-31	65	86	41	0
02/2006	2169	9	120	60	13	42	-17	10	36	-26	57	100	21	0
03/2006	7374	7	95	44	11	41	-19	8	33	-27	47	83	16	0
04/2006	11023	12	145	60	28	44	8	27	56	-4	53	100	23	0
05/2006	14693	9	152	40	43	69	23	44	76	20	48	100	11	0
06/2006	14901	11	169	45	50	73	23	51	83	15	52	100	12	1
07/2006	14704	10	171	46	55	72	42	56	84	36	58	100	28	2
08/2006	9982	13	144	70	49	67	32	49	74	29	65	100	32	4
09/2006	6413	10	148	49	43	60	22	43	67	17	63	100	20	1
10/2006	2759	13	140	61	31	60	5	30	59	-1	66	100	35	3
11/2006	747	5	138	31	-7	18	-23	-10	19	-32	59	86	34	0
12/2006	302	10	137	67	15	35	-4	13	32	-13	60	97	20	0



Bering Glacier Alaska

	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature			Ave Fuel Temp			Average Relative Humidity			Precipitation
Date	mph	Deg	mph	Deg F			Deg F			%			in
mm/yyyy	Ave.	Ave.	Max.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Total
01/2006	5	72	50	25	43	1	24	115	0	97	100	56	6
02/2006	6	23	83	27	49	-5	25	38	-1	88	100	37	6
03/2006	8	51	67	29	53	1	27	40	-4	77	100	18	2
04/2006	9	90	65	37	49	21	39	66	19	94	100	44	10
05/2006	8	42	55	46	73	28	53	93	25	90	100	35	5
06/2006	6	42	40	50	70	34	57	91	37	94	100	49	6
07/2006	5	344	39	50	71	35	52	88	-49	95	100	53	8
08/2006	9	85	53	51	67	35	34	85	-92	98	100	64	22
09/2006	8	83	59	47	61	29	48	150	-43	97	100	51	14
10/2006	7	82	63	40	56	18	142	150	131	98	100	59	30
11/2006	5	35	50	23	43	-1	146	150	107	74	100	33	1
12/2006	9	93	82	32	45	4	133	147	120	97	100	67	13



Appendix C: 2006 Extremes at long-term stations

McKinley Park - 2006 Records – 82 years

Record High Temperatures °F	44	Feb 16
	57	Oct 10
Record Low Temperatures °F	22, 29	June 5, 6
Record High Precipitation – In.	1.16	June 26
	0.91	July 13
	1.78, 0.26, 0.36	Oct 10, 11, 12

Talkeetna – 2006 Records – 57 years

Record High Temperatures °F	46	Feb 11
	80, 77	May 26, 27
	57	Oct 9
Record Low temperatures °F	32	June 4
Record High Precipitation – In.	0.91	July 15
	3.70, 0.95	Aug 18, 20
	0.91	Sep 27

Cantwell – 2006 records – 24 years

Record High Temperatures °F	41, 52, 43	Feb 10, 11, 12
	66, 73	May 23, 26
	84	Jun 14
	64, 66, 62	Sep 10, 14, 15
	58	Oct 9
	34	Dec 6
Record Low temperatures °F	-38, -43	Jan 26, 27
	-41	Feb 3
	-29, -35, -29	Mar 12, 16, 17
	9, 10	Apr 26, 30
	23	Jun 5
	34, 29, 23	Jul 19, 20, 28
	26	Aug 21
	26	Sep 4
	-22, -20, -30, -29	Nov 5, 17, 24, 26
Record Precipitation	0.12, 0.38, 0.03, 0.24	Feb 7, 19, 21, 22
	0.14	Mar 6
	0.17	Apr 10
	0.79	Jun 22
	0.72, 0.35	Jul 14, 15
	1.37	Aug 18
	0.32, 0.21	Oct 4, 20
Coldest November on Record	-4.1	November Mean

Eagle – 2006 Records -51 years

Record High Temperatures °F	45, 48, 48	Feb 12, 13, 14
	61, 54	Oct 11, 12
	41	Dec 21
Record Low temperatures °F	25	June 5
	28	June 6
Record Precipitation – In.	0.50	Mar 10
	0.36	May 28
	0.75, 0.31, 0.39	Jun 27, 28, 29
	0.63, 0.29	Aug 3, 22
	0.26	Dec 30
Coldest November on Record	-17	2006

McCarthy 2006 Records – 22 years of data

Record high Temperatures °F	44, 42	Feb 10, 12
	66, 59	Sep 12, 25
	34	Dec 30
Record Low Temperatures °F	-27, -28, -29	Mar 12,13 16
	16, 17	Apr 27, 29
	-29	Nov 15
Record Precipitation	0.38	Feb 6
	0.51, 0.52	Apr 4, 5
	0.62	Jun 22
	0.42	Jul 8
	0.13	Aug 18
	0.48	Sep 10
	0.85, 0.56, 2.50, 1.03	Oct 4, 9, 10, 21
	0.47	Dec 20
Wettest October on Record	5.69	October Total

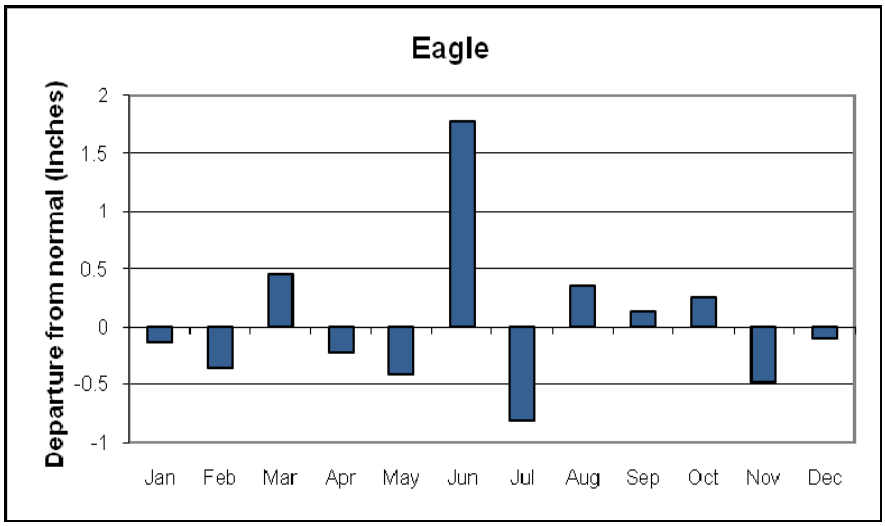
Yakutat 2006 records – 58 years of data

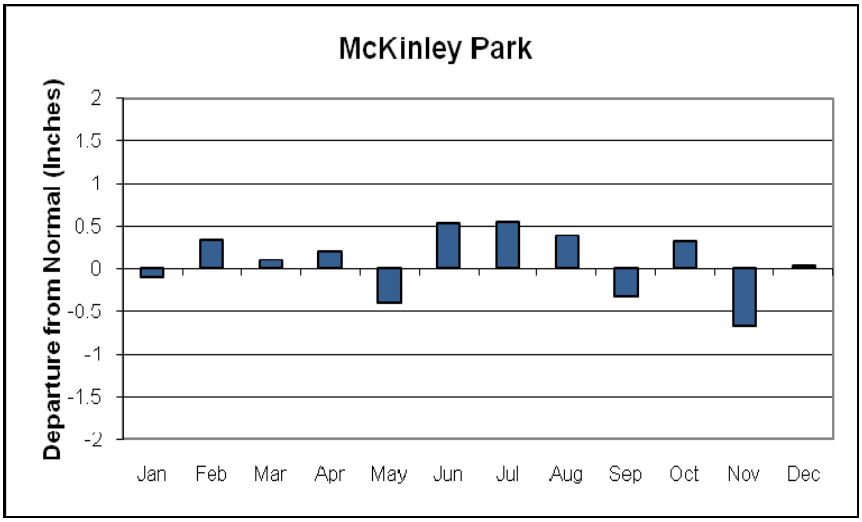
Record High temperatures °F:	46, 44	Jan 5, 8
	46, 47, 49	Feb 6, 10, 11
	58	Dec 29
Record Low temperatures °F	5, -2, -2	Mar 4, 16, 17
	9, 3, -2, -4, -2, -3	Nov 4, 22, 23, 25, 26, 27
Record precipitation – Inches	2.04	Apr 23
	1.59	Jul 20
Driest November on Record	1.82	November Total Inches

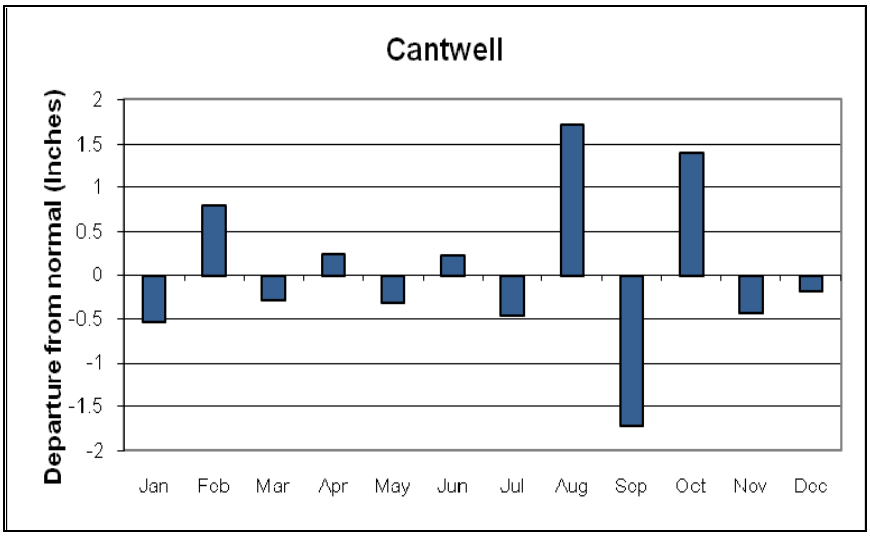
Gulkana 2006 records – 57 years of data

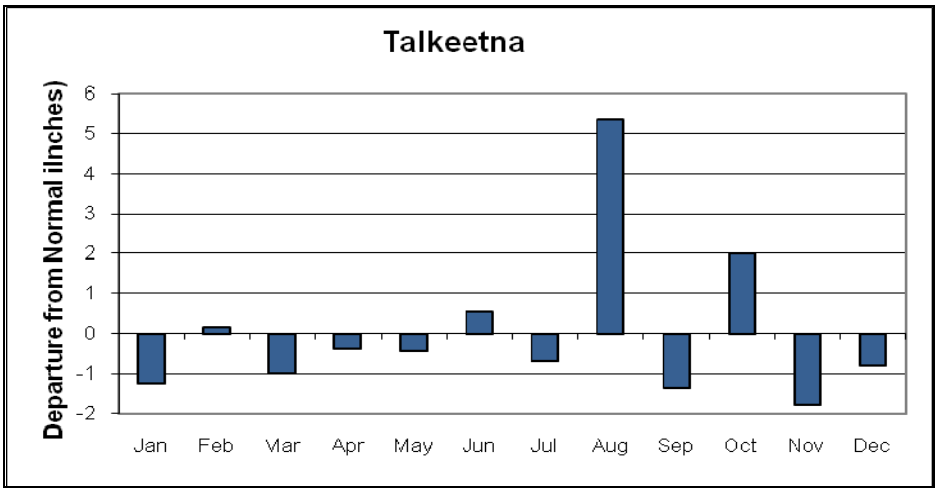
Record High temperatures °F	43, 34, 35	Feb 11, 13, 18
	65, 66	Sep 13, 14
	57	Oct 9
Record Low temperatures °F	33	Jun 25
	38	Jul 11
	-27, -29, -30	Nov 6, 7, 15
Record precipitation - Inches	0.26, 0.34	Feb 6, 10
	0.17	Mar 18
	0.52, 0.69, 0.25, 0.56	Aug 20, 21, 24, 25
	0.48	Sep 29
	0.66	Oct 21
	0.11	Dec 20
Coldest November on Record	-13.4	November Mean

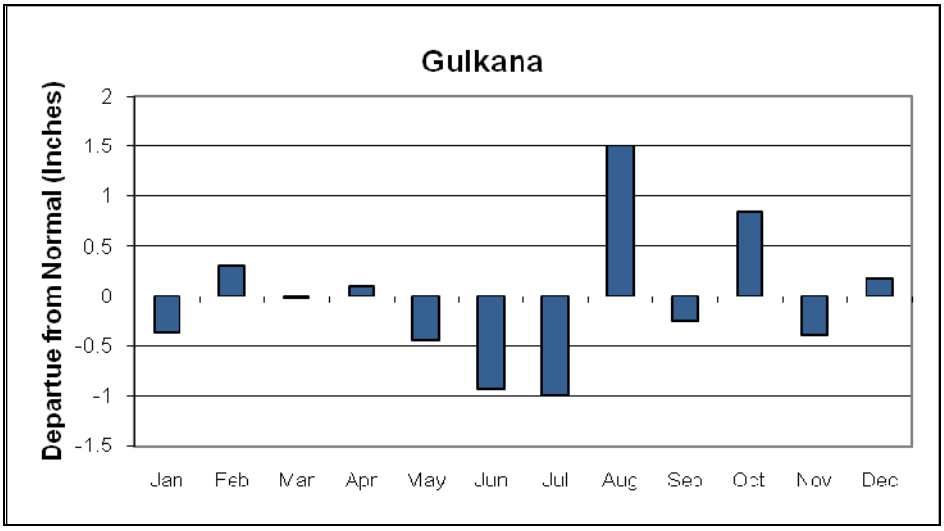
Appendix D: Monthly precipitation total departure from normal 2006

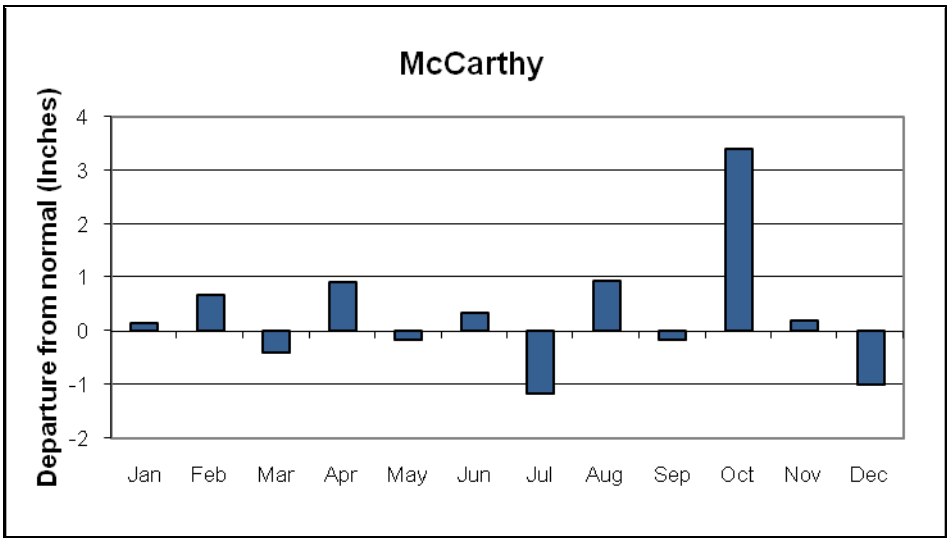


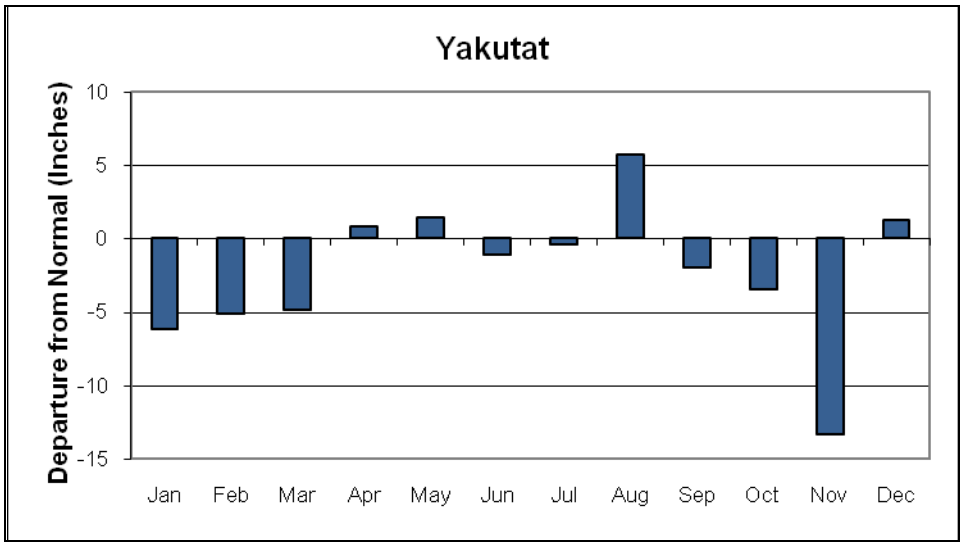




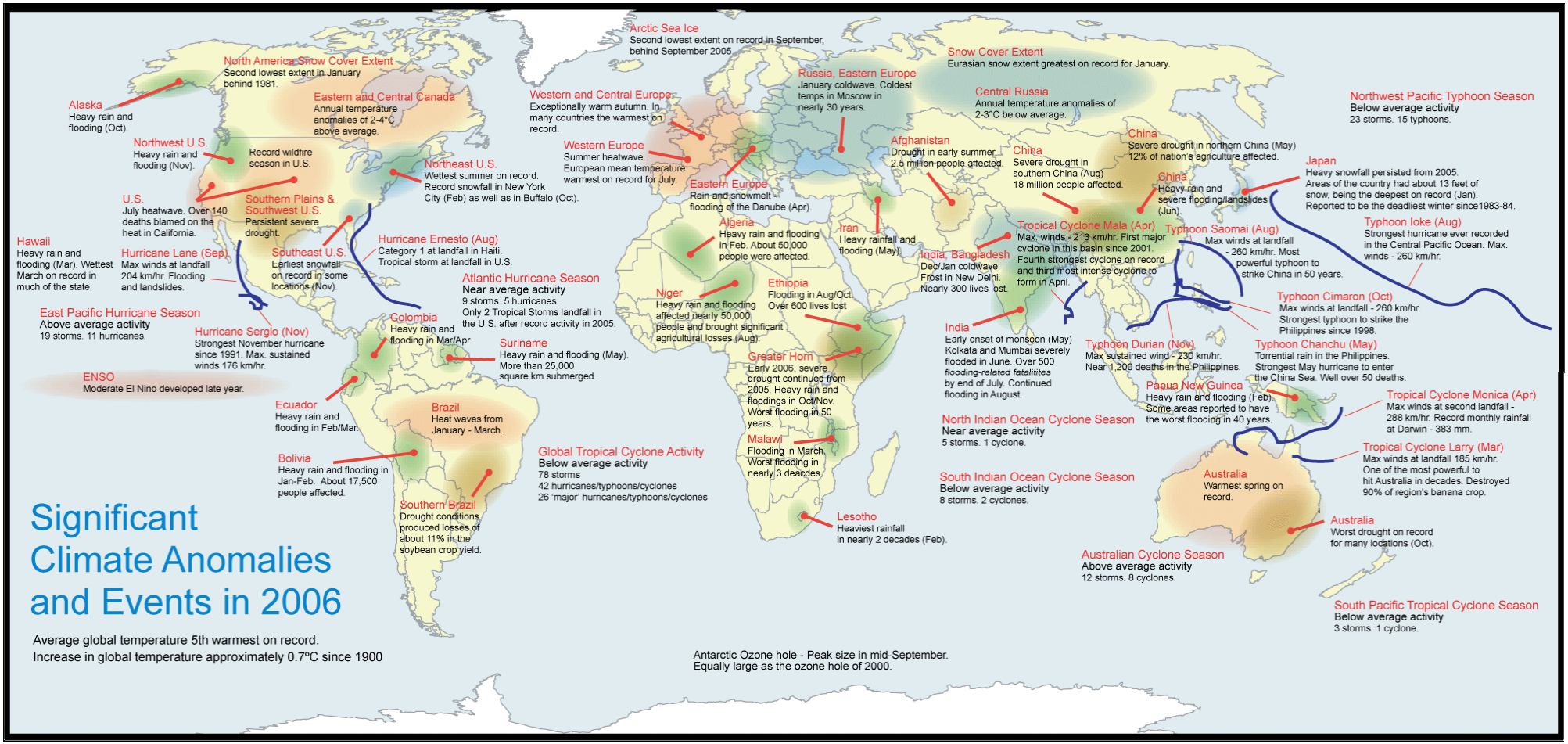

Talkeetna
Departure from Normal (inches)
6
5
4
3
2
1
0
-1
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


Gulkana
Departue from Normal (Inches)
2
1.5
1
0.5
0
-0.5
-1
-1.5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


McCarthy
Departure from normal (Inches)
4
3
2
1
0
-1
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


Yakutat
Departure from Normal (Inches)
10
5
0
-5
-10
-15
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Appendix E: Worldwide significant climate anomalies and events 2006 (NOAA 2006)




Significant U.S. Weather and Climate Events for 2006
WET
Parade of Pacific winter storms cause severe flooding. Wettest November for Washington.
SNOWPACK
Much above average winter snowpack for Northwest.
WILDFIRES
Record area burned for 2006 - over 9.5 million acres - most in western half of U.S.
SNOWPACK
Much below average winter snowpack for Southwest.
WET
Beneficial above average SW monsoon.
WET
Wettest October on record in Bethel and Valdez, AK.
WET
Exceptionally wet March. All-time wettest month on record for Wednesday
DROUGHT
Extreme drought in N. High Plains, N. Rockies, and N. Minn.
HEAT
July heatwave in Central and Western U.S.
DROUGHT
Extreme drought in Southern Plains.
WARMTH
Record warm January; 3rd warmest year on record.
SEVERE STORMS
Outbreaks produce approximately 500 tornadoes in southern Plains, TN and OH valleys (Mar-Apr).
WET
Exceptionally heavy rainfall in Mid-Atlantic and Northeast (June).
WET
Severe flooding in New England (May).
SNOW
February Blizzard - New 24-hour snowfall record in NYC.
SNOW
Earliest snowfall on record at both Charleston, SC and Savannah, GA (Nov).
HURRICANES
Much quieter Atlantic season than past 2 years. Only 2 landfalling tropical storms. 9 named storms total.
NOAA

The parks of the Central Alaska Network lie in an area that stretches northward from the Gulf of Alaska, transects 4 major mountain ranges, and crosses the banks of the upper Yukon River. They contain over 21.7 million acres and makeup 25% of all the land in the National Park Service. These parks represent a great diversity of climate and landform, from temperate rainforests to glaciated mountain ranges. What they share in common are their largely wild and unaltered landscapes. The Central Alaska Network views the parks as vast interconnected communities of life and environment, or ecosystems. The primary goal of the CAKN's Inventory & Monitoring Program is to understand relationships within network ecosystems and to monitor them for change. Such information may then be used by park managers, researchers, educators, and the public for a variety of purposes.

Inventory and Monitoring Networks are responsible for selecting and monitoring the key physical, chemical, and biological resources of their parks. Just as heartbeat and blood pressure are indicators of human health, key environmental "vital signs," such as water quality or species abundance, are indicative of park health. By measuring these ecosystem vital signs, networks will be better able to understand the condition of their parks, as well as provide a reference point for comparisons with altered environments outside their borders.

The Central Alaska Network has developed a list of 37 vital signs for long-term monitoring which encompass the animals, physical elements, human/environment interactions, and plant life in our parks. We have purposefully chosen a broad array of vital signs so that the monitoring program will readily detect unforeseen environmental changes.

Central Alaska Network

Denali National Park & Preserve
Wrangell-St. Elias National Park & Preserve
Yukon-Charley Rivers National Preserve

NPS D-174, December 2008

National Park Service
U.S. Department of the Interior

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