Air Temperature and Precipitation Data, Wolverine Glacier Basin, Alaska, 1967-94

By Ben W. Kennedy

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CONVERSION FACTORS, VERTICAL DATUM, SYMBOLS, AND MACHINE-READABLE FILES

Multiply	By	To obtain
millimeter (mm)	0.03937	inch
meter (m)	3.281	foot
kilometer (km)	0.6214	mile
kilogram (kg)	2.205	pound, avoirdupois
liter (L)	0.2642	gallon
degree Celsius (°C)	1.8, then add 32	degree Fahrenheit

Vertical datum:

In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929), a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

Symbols used in this report:

GH Gage height in millimeters of antifreeze-water solution in the collection tank.

GH_i Measured initial height in millimeters of antifreeze in the collection tank after emptying and recharging.

GP_c Measured distance in millimeters from the lower fixed reference pen trace to the precipitation pen trace.

GP_r Measured distance in millimeters from the instrument reference point to the precipitation pen in lap no. 1, measured during service visits.

GV_r Measured height in millimeters of the antifreeze-water solution in the gage collection tank, measured during service visits.

kg/L Kilograms per liter.

L_c Chart "lap" correction if lap no. is greater than 1. Lap no. and pen position are determined from chart measurements when the chart is analyzed.

LP_r Average of the measurements in millimeters made at the beginning and end of each chart from the instrument reference point to the lower fixed pen, measured during service visits.

LU_c Measured distance in millimeters from the lower fixed pen trace to the upper fixed pen trace.

P Daily precipitation catch in millimeters.

P_M Total depth in millimeters of antifreeze-water solution in the gage collection tank on a given day.

P_{M-1} Previous day's maximum depth in millimeters of antifreeze-water solution in the gage collection tank.

T Daily average air temperature in degrees Celsius.

T_0 Temperature in degrees Celsius that produces a liquid density of 1.00 kg/L for a given water concentration, depends on the value of W (table 8).

TC_0 Calculated difference in degrees Celsius between the temperature recorded on the strip chart and simultaneous calibration thermometer readings.

TP	Calculated distance in millimeters between the instrument reference point and the temperature pen trace at the time the data were recorded.
TP_c	Measured distance in millimeters from the lower fixed pen trace to the temperature pen trace.
UP_r	Average of the measurements in millimeters made at the beginning and end of each chart from the instrument reference point to the upper fixed pen, measured during service visits.
W	Ratio of water to total liquid in the precipitation gage collection tank.
W_0	Water concentration that produces a liquid density of 1.00 kg/L for a given temperature T_0 (table 8).
$d\rho_s/dT$	Density/temperature gradient constant, -6.67×10^{-4} (kg/L)/ °C.
$d\rho_s/dW$	Antifreeze-water solution density variable, depends on the value of W (table 8).
ρ_s	Antifreeze-water solution density.
ρ_s/ρ_w	Relative density of antifreeze-water solution, where ρ_w is the density of water.

Machine-readable files:

The daily air temperature and precipitation data contained in this report have also been recorded on easily copied computer media. The machine-readable data files are available from the World Data Center, Campus Box 449, University of Colorado, Boulder, CO 80309 and on data disk attached to the inside back page of this report.

Air Temperature and Precipitation Data, Wolverine Glacier Basin, Alaska, 1967-94

By Ben W. Kennedy

Abstract

Daily, monthly, and annual average air temperature and precipitation-catch data were recorded at Wolverine Glacier basin, Alaska, between June 1967 and September 1994. The recording station provides the only high-altitude, long-term, year-round climate data for the mountains of south-central Alaska. The data set is 95 percent complete. Monthly precipitation-catch and average air temperature summaries are calculated for months with nine or fewer daily records missing. Annual data summaries are calculated for each hydrologic year, October 1 through September 30, for years that have 12 months of valid data.

The average annual air temperature recorded at the site from 1967 through 1994 was -1.4 degrees Celsius (°C). The coldest recorded year was 1972 with an average annual temperature of -3.2°C. The warmest year was 1981 with an average annual temperature of 0.4°C. January 1989 was the coldest month with an average temperature of -14.0°C. July 1993 was the warmest month with an average temperature of 10.2°C.

The average annual precipitation catch recorded at the site from 1967 through 1994 was 1,064 millimeters (mm). The highest annual precipitation catch recorded was 2,011 mm in 1980; the lowest was 690 mm in 1972. The highest recorded monthly precipitation catch was 426 mm in September 1976 and the lowest was 4 mm in February 1989. Because of low gage-catch efficiency, the reported annual precipitation-catch data are estimated to represent only 33 percent of the actual annual basin precipitation. Snowfall is the dominant form of precipitation and usually accumulates on the glacier from September through mid-June.

INTRODUCTION

Wolverine Glacier is the southern member of a relatively small unnamed ice field, about 44 km in length, located on the Kenai Peninsula in south-central Alaska (fig. 1). Other major glaciers that drain from this ice field include Whittier, Portage, Spencer, Bartlett, Taylor, and Tebenkof Glaciers (Rennick, 1993). The Wolverine Glacier climatological station (lat 60°23'N., long 148°55'W.) records the only known high-altitude long-term, year-round climate data for the mountains of south-central Alaska. Air temperature and precipitation-catch data recorded at Wolverine Glacier basin between June 1967 and September 1994 are presented in this report in tabular and electronic formats.

Background

Wolverine Glacier is one of three long-term climate and glacier monitoring sites operated by the U.S. Geological Survey in North America. Glaciologic, climatologic, and hydrologic research began at the glacier during 1966 as part of the International Hydrological Decade Program (Mayo and March, 1990). The purpose of the Wolverine Glacier research program is to develop a better understanding of long-term climate variations and glacier processes in order to quantitatively predict the effect of glaciers on global sea level, water resources, and hydrologic hazards.

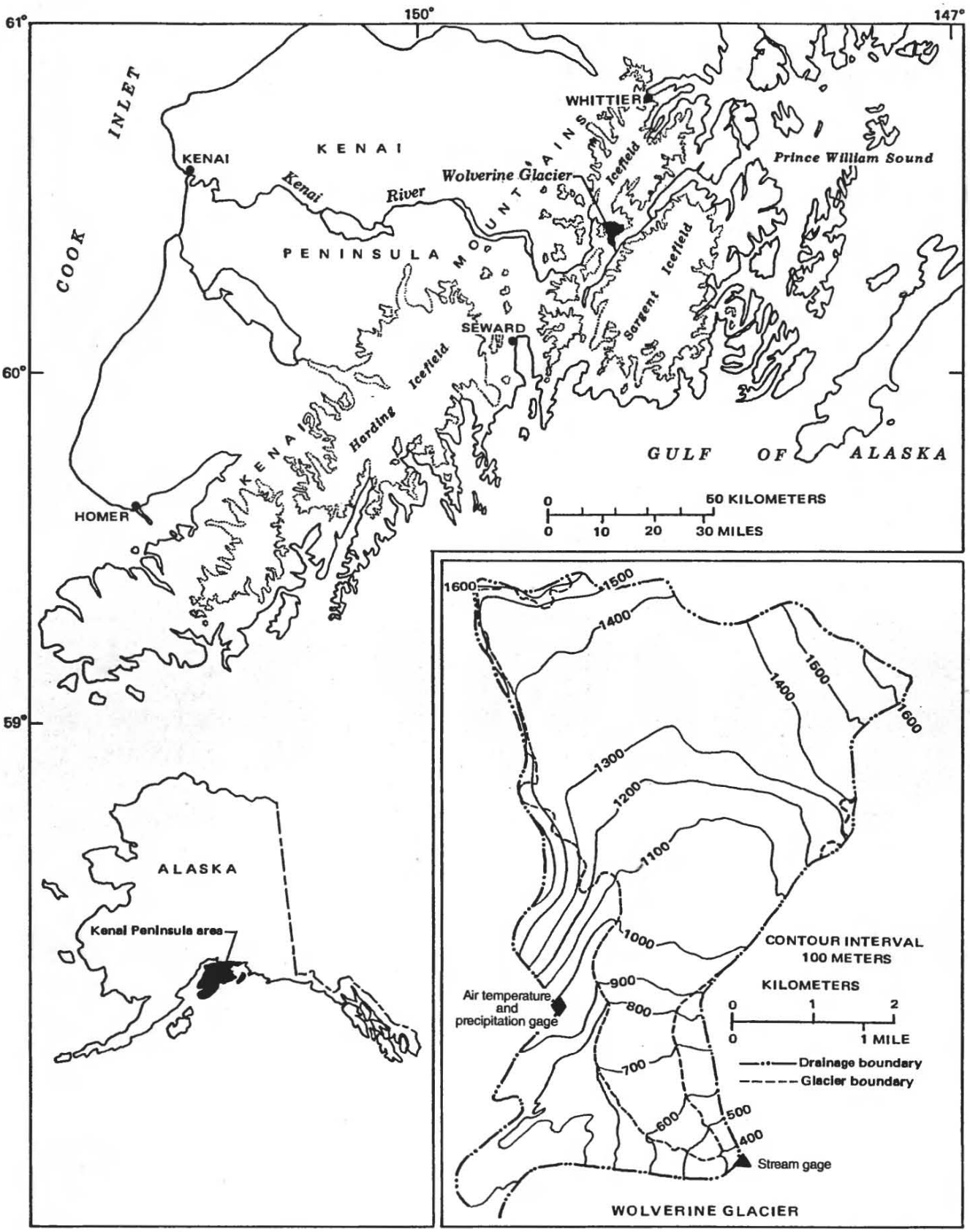

Figure 1. Location of Wolverine Glacier and instrument sites in the drainage basin, Kenai Mountains, Alaska.

Purpose and Scope

Air temperature and precipitation-catch data described in this report were recorded for the purpose of studying climate variations, determining dates of important glacier mass balance events, and investigating the effects of climate variation on glaciers. The purpose of this report is (1) to provide a comprehensive climatological data set for Wolverine Glacier in tabular and electronic format, (2) to summarize current methods used in measuring, calculating, and reporting Wolverine Glacier air temperature and precipitation data, and (3) to correct minor errors in previously published data (Mayo and others, 1992).

Precipitation catch and air temperature data have been recorded at Wolverine Glacier basin since June 1967. The data set is 95 percent complete. Equipment malfunctions account for the missing data. Dates of missing and estimated records are listed in table 1 (p. 18 of this report). Monthly precipitation catch and average air temperature summaries are calculated for months with nine or fewer daily records missing. Annual data summaries are calculated for the hydrologic year (HY), October 1 through September 30, for years that have 12 months of valid data. Monthly and annual average air temperature values are presented in table 2 (p. 19). Monthly and annual precipitation-catch values are presented in table 3 (p. 20). Monthly and annual air temperature and precipitation data are also presented in graphical form in Appendix A, figures A1 through A7. Daily average air temperature values are reported in table 4 (p. 21-48) and daily precipitation-catch values are reported in table 5 (p. 49-76). Daily, monthly, and annual air temperature and precipitation data are included on a data disk in Appendix B.

Much of the background information presented in this report is based on an earlier publication of 1967-88 Wolverine Glacier climatological data by Mayo and others (1992).

Previous Investigations

Analyses of glacial and climatic processes at Wolverine Glacier basin include: 1966 mass balance (Meier and others, 1971); 1967 through 1988 air temperature and precipitation records (Mayo and others, 1992); glacier growth in a warmer, wetter climate (Mayo and March, 1990); observed and predicted effects of climate change on Wolverine Glacier, southern Alaska (Mayo and Trabant, 1984); 1967 mass balance (Tangborn and others, 1977); and estimation and effects of internal accumulation (Trabant and Mayo, 1985).

Instrument Site and Climate Description

The Wolverine climatological station is located at an altitude of 990 m on the crest of a tundra-vegetated glacial moraine along the western boundary of the basin (fig. 1). The station is slightly lower than the glacier's average equilibrium line altitude and approximately 500 m from the west edge of the glacier.

Wolverine Glacier is located in the subpolar-maritime climate of south-central Alaska, near the Gulf of Alaska. Intense storms with high winds and abundant precipitation frequently pass through the area. These storms are generally associated with the Aleutian Low, a persistent atmospheric low-pressure area in the Gulf of Alaska region. Snowfall is the dominant form of precipitation and usually accumulates on the glacier from September through mid-June. Annual snowfalls of 6 m or more are common in the basin and temperatures usually range from -25°C to +15°C. High winds prevent deep snow from accumulating at the recording site.

DATA COLLECTION

Equipment

Station equipment consists of an air temperature sensor in a vented shelter, a precipitation gage with a windshield and steel storage tank, and an analog strip-chart recorder mounted inside a shelter on the storage tank (fig. 2). The meteorological equipment has remained essentially the same since the station began operation in 1967.

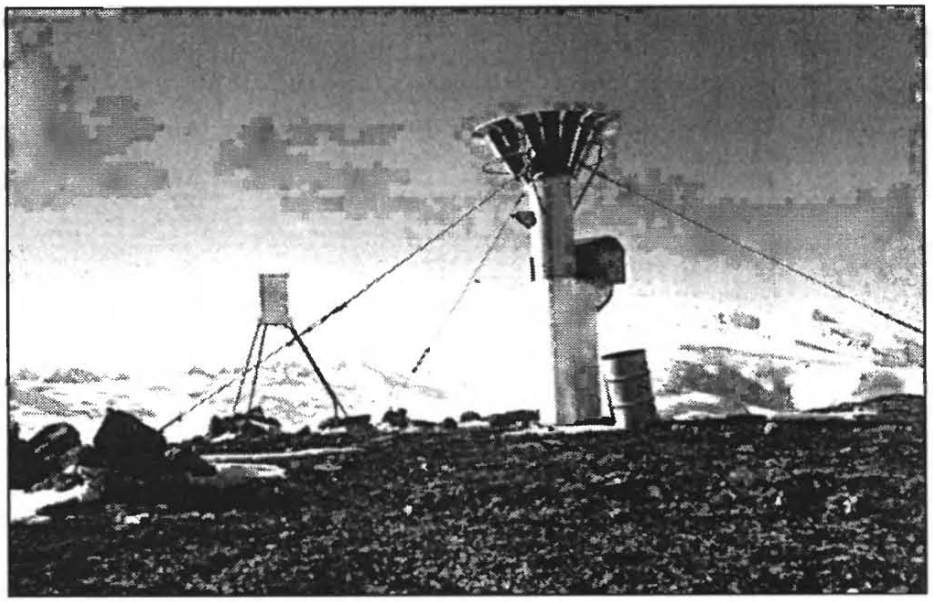

Figure 2. Air temperature and precipitation gage site at Wolverine Glacier, Kenai Mountains, Alaska.

Air Temperature Sensor

Air temperature is recorded using a copper-finned, liquid-filled (20x300 mm) temperature sensor and an analog recorder with a sensitivity of 0.2°C. Temperature variations induce a liquid volume change in the sensor bulb that expands and contracts a bellows mechanism attached to the recorder. The bellows mechanism moves the temperature pen on the strip-chart recorder. The system is designed for operation in temperatures between -40°C to +50°C. The sensor is housed in a vented white wooden radiation shelter 1.5 m above ground level (fig. 3). The bottom of the shelter is open to allow snow, blown through the ventilation slots, to fall out. Approximately 30 percent of the sensor is enclosed by a wooden support. A high quality alcohol-in-glass thermometer, accurate to ±0.1°C, is taped to the sensor to provide temperature calibration data during service visits. The south wall of the shelter has a narrow open slot (fig. 3) to allow the sun to warm the temperature sensor for approximately 15 minutes at the same time each day. On clear days, solar warming produces a distinct peak on the temperature record. These "sun peaks" occur at 1 p.m. Alaska Standard Time (AST) and at 2 p.m. Alaska Daylight Saving Time (ADST) and are used as time calibration marks on the strip-chart record.

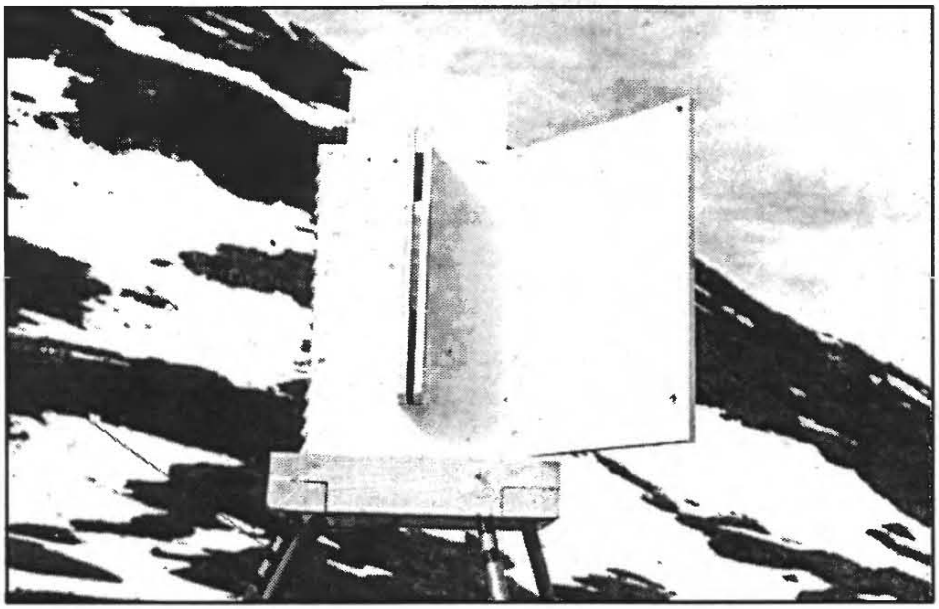

Figure 3. Shelter for the air temperature sensor.

Precipitation Gage

Precipitation is measured using a precipitation storage gage with a sensitivity of 1.0 mm of precipitation catch. The gage has a conical top with a 0.305-m-diameter orifice surrounded by a windshield. The steel collection tank is painted white, and an analog chart recorder is housed inside a shelter mounted on the collection tank (fig. 2). The gage orifice is 3 m above ground level. The upper section of the gage is painted dark green to absorb sunlight and help prevent ice and snow from accumulating on the inside walls of the gage. Windshield panels at the top of the gage are designed to move with the wind to prevent snow from capping the orifice. The windshield approximates the shape of a Nipher Shield (Warnick, 1953).

The storage tank contains a self-mixing antifreeze (Mayo, 1972). An oil layer prevents evaporation of stored precipitation and the white color of the collection tank reduces solar warming of the stored antifreeze-water solution. The height of the antifreeze-water solution in the gage collection tank is sensed by a 0.3-m-diameter float and recorded continuously by the precipitation gage pen trace on the strip chart. The system is designed for operation in temperatures above -40°C.

Chart Recorder

Precipitation catch and air temperature are recorded by a spring driven, multi-pen strip-chart recorder (Leupold & Stevens, Type A35[1]). The recorder will operate for approximately 5 months between servicing visits, recording analog data on a continuous basis. Service personnel establish

[1] The use of brand, firm, or product names in this report is for identification purposes only, and does not constitute endorsement by the U.S. Geological Survey.

the starting position of the recorder pens on each strip chart. The temperature pen responds directly to air temperature changes. The precipitation gage pen records liquid depth; daily precipitation catch is calculated from the cumulative precipitation catch. Because large amounts of precipitation may accumulate in the gage collection tank between service visits, the precipitation pen mechanism is designed to reverse its direction of travel when it reaches either the top or bottom edge of the chart. Each reversal of pen direction is assigned a lap number (fig. 4) when the chart is analyzed.

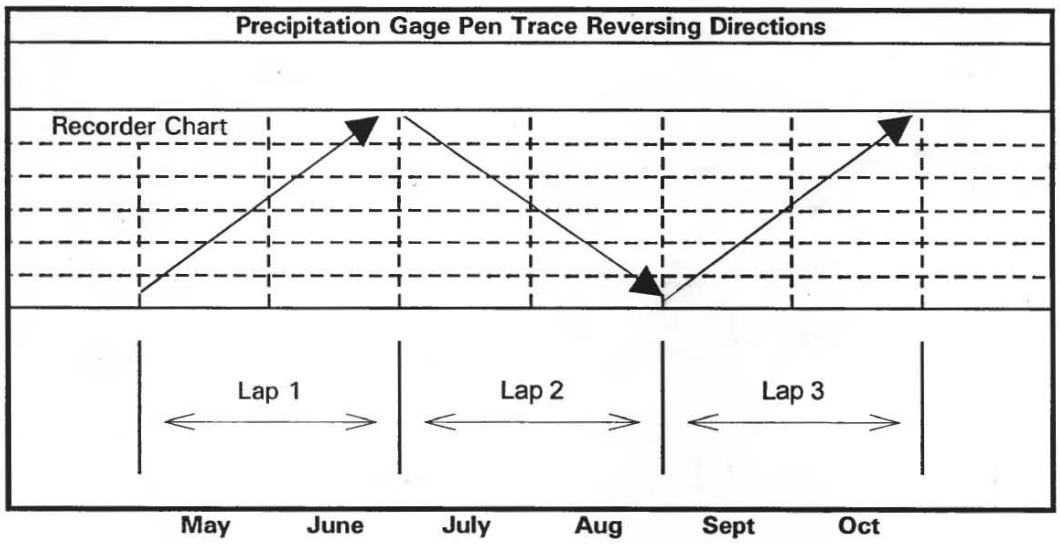

Figure 4. Simulated record of the precipitation gage pen reversing directions at the upper and lower edge of the recorder chart and corresponding lap numbers assigned when the chart is analyzed (modified from Mayo and others, 1992).

Operating Problems

The most serious equipment problem has been the occasional stoppage of the strip-chart recorder clock. Recorder malfunctions occur most commonly during cold winter months, though gaps in the chart record also occur during summer months (table 1).

Before June 1968, precipitation catch data were adversely affected by windblown snow entering the storage tank through the recorder shelter. During June 1968, a double-walled recorder shelter, an internal baffle, and a new orifice windshield were added to the gage. The 1968 windshield wore out and was replaced in June of 1980.

Although the windshield on top of the precipitation gage is operational and the gage orifice is painted dark green to absorb sunlight, snow occasionally sticks on the inside of the gage above the antifreeze solution level. When temperatures rise, this snow falls into the collection tank producing spikes on the precipitation-catch record. These precipitation spikes are reported as precipitation catch on the day they occur; however, caution should be used when analyzing these reported daily values because they may include precipitation from previous days. Table 6 (p. 77) lists the dates that precipitation spikes occur.

Precipitation gages operated in windy environments are subject to differences between actual precipitation and the amount caught by the gage. According to Goodison (1978), gage catch efficiency is inversely related to wind speed. Analysis of published 1967 through 1977 streamflow and glacier mass balance data by Mayo and others (1992) indicates that annual precipitation at Wolverine Glacier, averaged over the basin, is about three times greater than that recorded by the precipitation gage. Because neither the station location nor the station equipment have changed, recorded annual precipitation-catch data reported herein are assumed to represent approximately 33 percent of actual annual basin precipitation.

Calibration

A calibration record is maintained and analyzed for accuracy and consistency in the operation of the air temperature and precipitation measuring devices and the strip-chart recorder. Service visits are usually completed three times per year to check instrument calibrations, service equipment, and retrieve strip-chart records.

Air Temperature Sensor Calibration

A National Bureau of Standards certified alcohol thermometer, accurate to ±0.1°C, is used to calibrate the air temperature sensor during service visits. The calibration thermometer is taped to the air temperature sensor. Usually, during a 5-to-10 minute period, five or more calibration thermometer readings are compared with the temperature indicated by the temperature pen trace on the strip chart. Calibration data have been obtained at temperatures ranging from -21°C to +14°C.

Regression analysis of temperature calibration data indicates that the response of the temperature-sensor recorder mechanism may be slightly less than the 1.0 mm/°C specified by the manufacturer. Mayo and others (1992) calculated a 0.93 mm/°C response, with a standard error of 0.6 mm, based on 1980-1985 temperature calibration data. Regression analysis of longer term (1980-94) calibration data indicates a response of 0.96 mm/°C with a standard error of 0.6 mm.

Precipitation Gage Calibration

The precipitation gage collection tank is emptied and recharged annually with an antifreeze mixture. Calibration measurements are made during the recharge process to document accuracy of the precipitation-catch record and include (1) measuring the lowest position of the precipitation gage pen on the chart from the fixed reference point on the instrument when the gage collection tank is emptied, (2) measuring the level of recharged antifreeze solution in the collection tank after the tank has been refilled, and (3) measuring the position of the precipitation gage pen on the strip chart from the fixed reference point on the instrument after the collection tank has been refilled.

Chart Recorder Calibration

The recorder was initially designed to produce only air temperature and precipitation pen traces. However, to increase accuracy of the recorded measurements, four continuous pen traces are now recorded on each strip chart: air temperature, precipitation, and two fixed reference pens, one along each edge of the chart (fig. 5). The lower fixed reference pen was installed during June of 1978 to provide for correction of meander or alignment problems in the track of the chart paper. During June of 1980, the upper fixed reference pen was installed to provide a means of detecting and correcting for expansion and contraction of the chart paper.

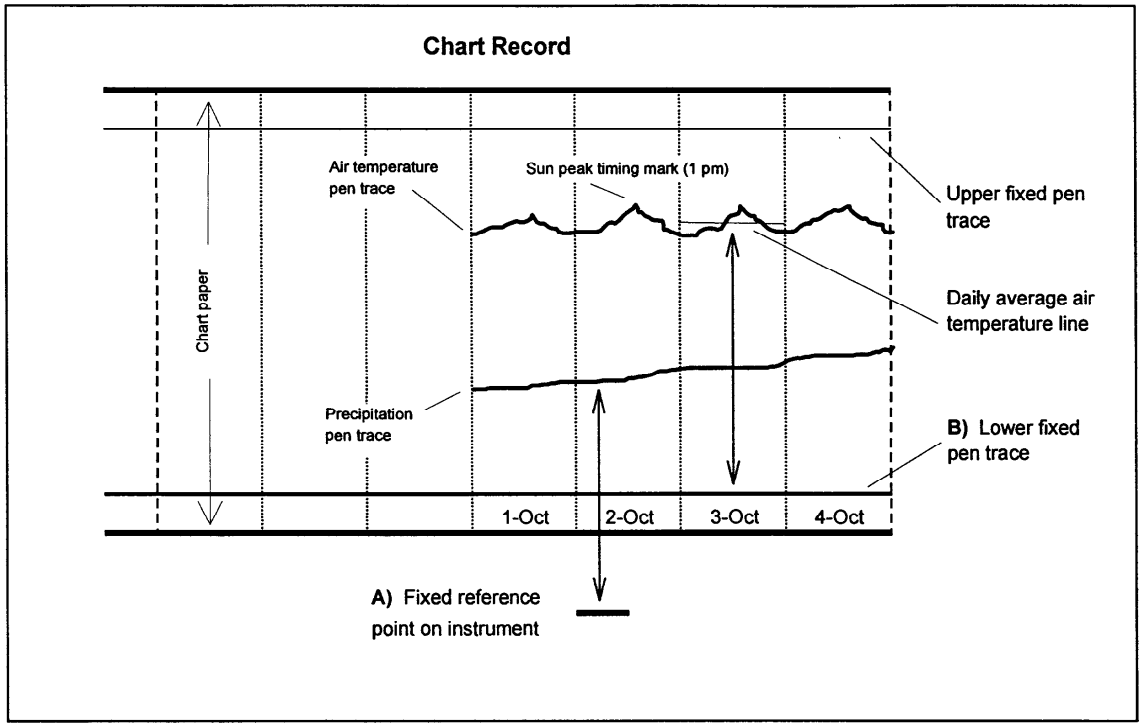

Figure 5. Simulated chart record showing fixed reference point on the instrument, upper and lower fixed pen traces, air temperature pen trace, precipitation pen trace, daily average air temperature line, and sun peak timing marks. Calibration measurements are made from **A)** the fixed reference point on the instrument during service visits. Average air temperature and precipitation catch measurements are made in the office from **B)** the lower fixed pen trace. Daily average air temperature lines are determined in the office.

During service visits, the positions of the fixed pens are measured relative to a stationary reference point on the instrument (fig. 5). These known pen positions, and their chart traces, provide a standard background reference datum for data analysis and essentially eliminate the errors associated with expansion and contraction of chart paper, and variations in the chart track.

DATA REDUCTION

Chart Time Corrections

Changes in speed of the spring-driven chart clock often result in "strip-chart time" being shifted, or offset, from actual time. The most common problem is a slowing of the chart speed as the spring drive unwinds. Hand-written time marks from service visits, as well as sun peaks on the temperature record are used to correct chart time. To ensure timing accuracy, each daily record is partitioned on the chart to correlate within 30 minutes of hand-written time marks and sun peak data.

Daily Average Temperature Line

For each daily record an average temperature line is determined visually using a clear plastic template. The template has an etched horizontal center line with vertical tick marks that correspond to a 24-hour time period on the strip chart. The template is centered over each daily, 12 midnight to 12 midnight, temperature pen trace and shifted up or down until the temperature pen trace areas, above and below the template center line, are equal. The template center line position is marked on the strip chart and is used as the daily average temperature pen position for chart measurements (fig. 5). The average temperature line represents the daily average temperature pen position on the chart before corrections are made for expansion and contraction of the chart paper and meander in the chart track. An estimated error of ±0.5°C is associated with this method of determining the daily average temperature pen position.

Chart Measurements

On each strip chart the lower fixed pen trace is used as a zero reference line (fig. 5) from which the distance to the precipitation pen trace, the upper fixed pen trace, and the line for the daily average temperature pen position are measured using a hand-held metric ruler. These measured distances, as well as calibration data obtained during service visits, are used to calculate the daily precipitation catch and daily average air temperature from recorded pen traces. The width of the pen trace prevents the pen positions from being measured more accurately than ±0.2 mm.

Air Temperature Calculation

Air temperature values are calculated using the measured daily average temperature pen position (*TP*) as the independent variable in a regression equation developed from temperature calibration data. The equations used for determining daily temperature values are outlined below.

Temperature Pen Position

In order to account for expansion and contraction of the chart paper and meander in the strip-chart track, the temperature pen position (*TP*) at the time the data were recorded is determined using the measured pen position and fixed-pen-calibration data as follows:

$$TP = TP_c(UP_r - LP_r)/LU_c + LP_r \qquad (1)$$

where

- TP is the calculated distance in millimeters between the instrument reference point and the temperature pen trace at the time the data were recorded,
- TP_c is the measured distance in millimeters from the lower fixed pen trace to the temperature pen trace (fig. 5),
- UP_r is the average of the measurements in millimeters made at the beginning and end of each chart from the instrument reference point to the upper fixed pen (fig. 5),
- LP_r is the average of the measurements in millimeters made at the beginning and end of each chart from the instrument reference point to the lower fixed pen (fig. 5), and
- LU_c is the measured distance in millimeters from the lower fixed pen trace to the upper fixed pen trace (fig. 5).

Variables with subscript "c" are measured in the office from the chart record. Variables with subscript "r" are measured at the instrument site during service visits.

Daily Average Air Temperature

To determine the daily average air temperature (T), from the recorded temperature pen position (TP), a regression equation was developed using temperature calibration data obtained from 1980 through 1994. The regression equation yields the following relation:

$$T = (1.039(TP) - 234.5) + TC_0 \tag{2}$$

where

T is the daily average air temperature in degrees Celsius,

1.039 is the recorder response constant in degrees Celsius per millimeter,

TP is the calculated distance in millimeters between the instrument reference point and the temperature pen trace at the time the data were recorded (equation 1),

234.5 is the y-axis intercept in millimeters, and

TC_0 is the calculated difference in degrees Celsius between the temperature recorded on the strip chart and simultaneous calibration thermometer readings.

Because the temperature pen position may be offset when replacing or inking the pen during service visits, the "y-intercept value" of the regression equation is not assumed to be constant. Instead, the regression line is allowed to shift up or down for each chart period depending on the temperature offset between the calibration thermometer and the beginning and ending temperature pen positions on the strip chart. Calibration data used in developing the temperature regression equation and calculated temperature offsets are presented in table 7 (p. 78).

Precipitation-Catch Calculation

The precipitation catch recorded on the strip chart is a function of the amount of precipitation caught, as well as the density of the antifreeze-water solution, in the gage collection tank.

Antifreeze-Water Solution Gage Height

The end-of-day height of the antifreeze-water solution in the collection tank is determined from chart measurements and calibration data using equation 3. This equation accounts for expansion and contraction of the chart paper, offset in the chart pen position at the time the data were recorded, the difference in cross-sectional area between the gage collection tank and the gage orifice, and provides a lap correction if the precipitation pen has rotated through more than one lap sequence.

$$GH = \left\{ 5GP_c(UP_r - LP_r)/LU_c + [GV_r - 5(GP_r - LP_r)] \right\} + L_c \tag{3}$$

where

GH is the gage height in millimeters of antifreeze-water solution in the collection tank,

5 is the ratio of the storage reservoir area to the gage orifice area,

GP_c is the measured distance in millimeters from the lower fixed reference pen trace to the precipitation pen trace (fig. 5),

UP_r is the average of the measurements in millimeters made at the beginning and end of each chart from the instrument reference point to the upper fixed pen (fig. 5),

LP_r is the average of the measurements in millimeters made at the beginning and end of each chart from the instrument reference point to the lower fixed pen (fig. 5),

LU_c is the measured distance in millimeters from the lower fixed pen trace to the upper fixed pen trace (fig. 5),

GV_r is the measured height in millimeters of the antifreeze-water solution in the gage collection tank,

GP_r is the measured distance in millimeters from the instrument reference point to the precipitation pen in lap no. 1 (fig. 5), and

L_c is the chart "lap" correction if lap number is greater than 1. Lap number and pen position are determined from chart measurements when the chart is analyzed (fig. 4).

As noted earlier, variables with subscript "c" are measured in the office from the chart record; variables with subscript "r" are measured at the instrument site during service visits.

The calculated daily gage height (*GH*) variable represents total precipitation catch plus the initial amount of antifreeze solution stored in the collection tank.

Antifreeze-Water Solution Density

Density of the antifreeze-water solution (fig. 6) varies with temperature and the ratio of water to initial antifreeze (Mayo, 1972). In order to determine daily density values of the stored solution, estimates of the solution temperature and water ratio are calculated for each daily record.

Solution Temperature

The temperature of the antifreeze-water solution is assumed to be the same as the measured daily average air temperature. A time lag of about 4-6 hours occurs between air temperature changes and thermally caused gage height changes. Although this time lag varies somewhat with the mass of fluid in the gage, inspection of the temperature record shows that the daily average air temperature provides a reasonable approximation of the antifreeze-water solution temperature at midnight.

Water-Solution Ratio

The water-solution ratio of the antifreeze in the gage tank, *W*, is calculated as:

$$W = (GH - GH_i)/GH \tag{4}$$

where

GH is the gage height in millimeters of antifreeze-water solution in the collection tank (equation 3), and

GH_i is the measured initial height in millimeters of antifreeze in the collection tank after emptying and recharging.

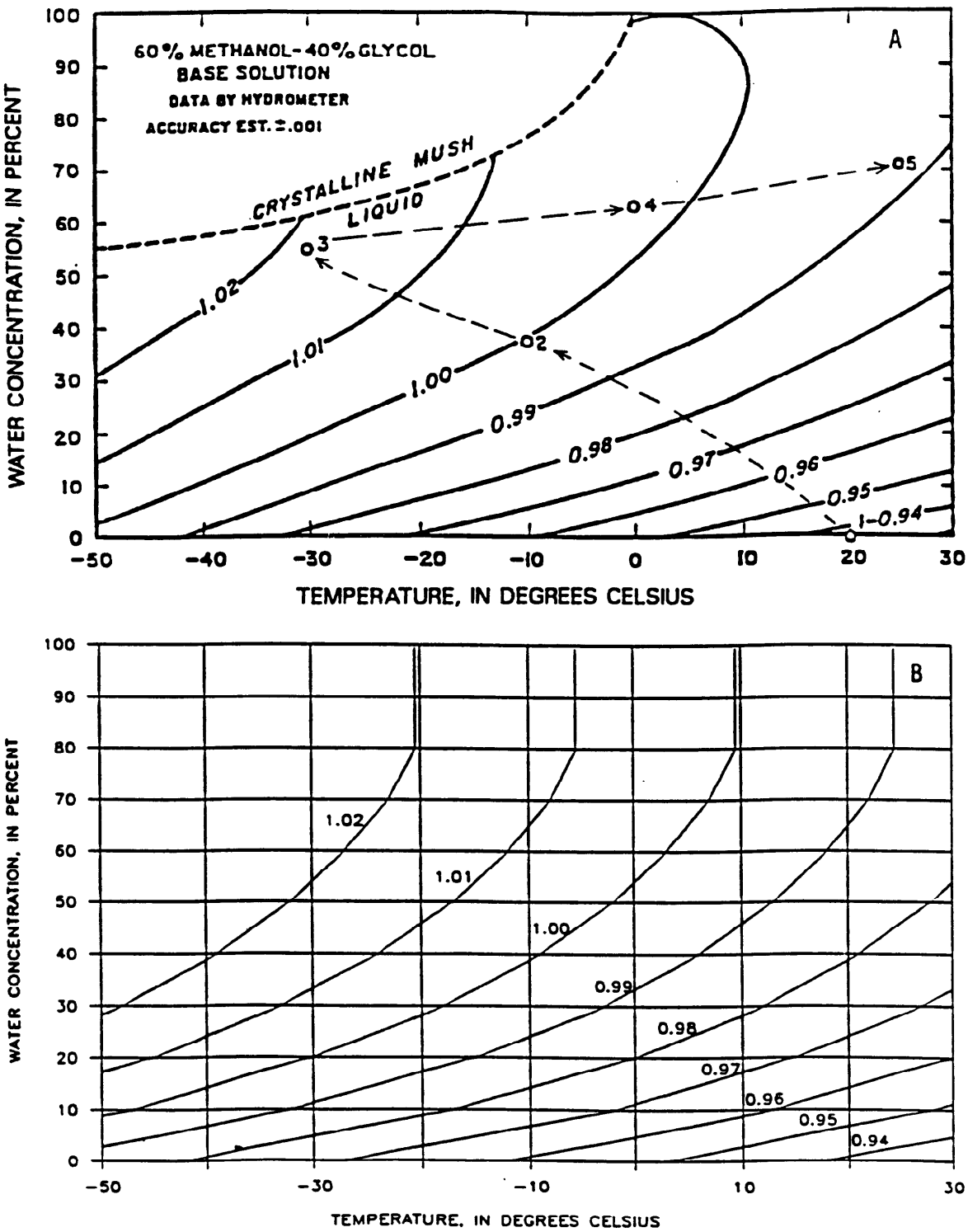

Figure 6. Antifreeze mixture density (contour values in kilograms per liter) as a function of temperature and water concentration. A) Published density values (Mayo, 1972). Open circles with numbers connected by dashed line show hypothetical seasonal variations of density that are possible as precipitation is added and temperature varies. B) Simplified density values (equation 5) used in this report for determining precipitation (from Mayo and others, 1992).

Solution Density Estimates

Daily solution density values are estimated using daily average air temperature data and the calculated end-of-day water concentration of the antifreeze-water solution in the gage tank. These daily values, and the antifreeze-water solution density variables listed in table 8 (p. 79) are used in the following equation to approximate the solution density:

$$\rho_s = 1.00 + (T-T_0)(d\rho_s/dT) + (W-W_0)(d\rho_s/dW) \quad (5)$$

where

ρ_s is the antifreeze-water solution density,

T is the daily average air temperature in degrees Celsius (equation 2),

T_0 is the temperature in degrees Celsius that produces a liquid density of 1.00 kg/L for a given water concentration, depends on the value of W (table 8),

$d\rho_s/dT$ is the density/temperature gradient constant, -6.67×10^{-4} (kg/L)/°C,

W is the ratio of water to total liquid in the precipitation gage collection tank (equation 4),

W_0 is the water concentration that produces a liquid density of 1.00 kg/L for a given temperature T_0 (table 8), and

$d\rho_s/dW$ is the antifreeze-water solution density variable, depends on the value of W (table 8).

Daily Precipitation Catch

The total precipitation catch in storage each day (P_M) is calculated by multiplying the gage height (GH) of the solution in the collection tank by its relative density, ρ_s/ρ_w, where ρ_w is the density of water:

$$P_M = (GH)\,(\rho_s/\rho_w) \quad (6)$$

Final daily precipitation catch (P), in millimeters, is calculated as the difference between the total precipitation catch (P_M) in storage on that day, and the previous maximum (P_{M-1}) in the collection tank:

$$P = P_M - P_{M-1} \quad (7)$$

DATA ACCURACY

Uncertainties in the daily average air temperature and precipitation-catch values are subdivided into pre-1980 and post-1980 periods because of the increased recording accuracy provided by the fixed reference pens installed on the strip-chart recorder during 1980. The uncertainties associated with determining daily air temperature and precipitation catch values are summarized and combined using standard techniques; uncertainties in sums are combined in quadrature (the square root of the sum of the squares), and for uncertainties in products the fractional errors are combined in quadrature (Taylor, 1982). The table below summarizes the uncertainties in average air temperature and precipitation catch:

Summary of uncertainties	Pre-1980	Post-1980
Average air temperature (degrees Celsius)		
1. Sensor calibration uncertainty	±1.0	±0.7
2. Measurement of pen position uncertainty	±1.3	±0.7
Total daily average air temperature uncertainty	±1.6	±1.0
Precipitation catch (millimeters)		
1. Antifreeze density estimate uncertainty	±4.0	±4.0
2. Measurement of pen position uncertainty	±6.5	±3.5
Total daily precipitation catch uncertainty	±8.0	±5.0

MONTHLY AND ANNUAL DATA FORMAT

In order to summarize the data set in an easy to read format, monthly and annual air temperature and precipitation data are presented in tables 2 and 3 respectively, and in graphical form in Appendix A. Monthly and annual data from 1967 through 1988 were published by Mayo and others (1992) and are revised in this report to correct minor rounding errors. In addition, monthly and annual summaries in this report may differ slightly from those reported by Mayo and others (1992) because their monthly and annual data summaries include estimates of missing monthly records. The data summaries reported herein follow suggested National Climate Data Center (NCDC) reporting format--not more than 9 days of record from other nearby stations are used to calculate summaries for months with missing data (Grant Goodge, NCDC, oral commun., 1995). If more than 9 records are missing, the monthly summary is reported as "not valid"; however, in some cases partial strip-chart records, in conjunction with data from Seward, Alaska, allowed reasonable estimates of daily values slightly beyond the 9-day limit. Dates of estimated and missing data are listed in table 1. Annual data summaries are calculated for those hydrologic years that have 12 months of valid recorded data. However, it is important to note that even though several months of precipitation record may be missing within a particular hydrologic year, a valid cumulative precipitation catch for that period can still be measured when the chart recorder is restarted because the precipitation gage is a storage-type gage. Annual precipitation catch reported for 1971, 1977, 1978, 1990, and 1994 hydrologic years include data measured in this manner (table 3).

Graphs of annual average air temperature and annual precipitation catch are presented in figures A1 and A2 (Appendix A). The relation between annual precipitation catch and annual average air temperature is shown in figure A3. Monthly average air temperature maximums, means, and minimums are shown in figure A4. Monthly precipitation catch maximums, means, and minimums are shown in figure A5. Graphs of average air temperature plotted by month are presented in figure A6 and graphs of precipitation catch plotted by month are presented in figure A7. Summary data values are included next to each chart in figures A1, A2, A6, and A7. Each chart of monthly and annual air temperature and precipitation-catch data includes plots of the data mean and one standard deviation either side of the mean.

MONTHLY AND ANNUAL DATA SUMMARY

The average annual air temperature recorded at Wolverine Glacier, from hydrologic years 1967 through 1994, was -1.4°C. The coldest recorded year was 1972 with an annual average temperature of -3.2°C. The warmest year was 1981 with an annual average temperature of 0.4°C. January 1989 was the coldest month with an average temperature of -14.0°C and July 1993 was the warmest with an average temperature of 10.2°C.

The average annual precipitation catch recorded at the site, from hydrologic years 1967 through 1994, was 1,064 mm. The highest annual precipitation catch recorded was 2,011 mm in 1980; the lowest was 690 mm in 1972. The highest recorded monthly precipitation catch was 426 mm in September 1976 and the lowest was 4 mm in February 1989.

Daily, monthly, and annual air temperature and precipitation data are included on a data disk in Appendix B.

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TABLES 1-8

Table 1. Dates of estimated and missing daily values for air temperature and precipitation data, Wolverine Glacier Basin, 1967-94 hydrologic years

Hydrologic year	Precipitation catch		Air temperature	
	Estimated record	Missing record	Estimated record	Missing record
1967	--	--	--	--
1968	4/21-5/8	10/16-1/28	3/24-4/3	--
	--	2/1-2/7	--	--
	--	2/16-4/9	--	--
1969	--	--	--	--
1970	11/7-11/19	--	11/7-11/19	--
1971	7/28-7/31	9/6-9/30	7/28-7/31	9/6-9/30
	8/3-8/12	--	8/3-8/12	--
	8/15-8/16	--	8/15-8/16	--
1972	10/1-10/13	--	10/1-10/13	--
1973	--	--	--	--
1974	--	--	--	--
1975	--	--	--	--
1976	--	--	--	--
1977	--	10/17-2/22	--	10/17-2/23
1978	--	4/22-9/27	--	10/24-2/28
	--	--	--	4/22-9/29
1979	--	--	--	--
1980	1/10-1/12	--	--	--
1981	--	--	--	--
1982	--	--	--	--
1983	--	--	--	--
1984	--	--	--	--
1985	--	--	--	--
1986	--	6/15-8/21	--	6/15-8/20
1987	1/13-2/11	--	1/29-2/10	--
1988	3/11-3/16	--	--	3/11-5/26
1989	1/28-1/29	--	1/28-1/29	--
1990	10/4-10/7	1/31-3/17	10/4-10/7	1/31-3/17
1991	9/13-9/14	--	9/13-9/14	--
1992	4/12-4/14	--	4/12-4/14	--
1993	1/21-1/27	--	1/21-1/27	--
1994	--	11/21-2/3	--	11/21-2/3

Table 2. Monthly and annual average air temperature at 990 meters altitude, Wolverine Glacier basin, 1967-94 hydrologic years

[Data in degrees Celsius; annual average temperature is referenced as "N/A" if one or more monthly records are missing; (--) record missing]

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Average
1967	--	--	--	--	--	--	--	--	4.5	8.1	6.6	3.1	N/A
1968	- 1.0	- 4.9	- 7.9	- 9.2	- 5.5	- 4.7	- 3.7	2.1	4.1	7.3	8.4	2.7	- 1.0
1969	- 3.9	- 6.0	- 9.6	-11.5	- 6.8	- 5.5	- 3.0	1.0	6.5	6.8	6.0	4.2	- 1.8
1970	1.5	- 4.8	- 3.5	- 8.9	- 3.4	- 3.5	- 4.9	0.2	2.4	5.0	4.4	1.6	- 1.2
1971	- 4.5	- 4.6	- 9.2	-13.9	- 8.7	-10.9	- 5.3	- 3.0	3.8	7.0	7.6	--	N/A
1972	- 3.5	- 7.5	- 8.9	-12.2	- 8.6	-10.8	- 7.7	- 0.5	2.0	9.8	7.4	2.0	- 3.2
1973	- 3.0	- 5.5	- 7.2	-11.4	- 5.5	- 5.7	- 3.3	- 1.0	3.2	5.5	5.6	2.1	- 2.2
1974	- 3.4	- 9.5	- 6.9	- 8.5	- 9.6	- 7.0	- 2.9	2.5	4.8	7.1	9.1	5.2	- 1.5
1975	- 3.2	- 6.0	- 8.4	-11.3	- 8.7	- 8.0	- 4.9	- 0.4	2.8	7.4	7.0	3.4	- 2.5
1976	- 2.4	- 8.6	-10.5	- 7.5	- 9.7	- 7.8	- 4.3	- 0.9	5.3	7.4	7.1	1.7	- 2.5
1977	--	--	--	--	--	- 8.4	- 4.3	0.0	4.9	8.3	8.3	4.4	N/A
1978	- 1.2	--	--	--	--	- 6.0	--	--	--	--	--	--	N/A
1979	- 1.5	- 4.6	- 7.3	- 5.2	-11.1	- 3.9	- 1.9	0.6	4.9	7.7	9.7	5.8	- 0.5
1980	0.7	- 2.5	-10.8	- 9.0	- 4.8	- 7.0	- 3.5	- 1.3	4.5	7.6	6.4	4.2	- 1.3
1981	- 0.5	- 2.3	- 8.5	- 1.7	- 5.2	- 2.7	- 1.5	4.2	5.6	6.9	6.7	3.0	0.4
1982	- 1.0	- 5.0	- 7.0	- 9.1	-10.0	- 6.9	- 5.4	- 0.6	4.2	6.6	6.8	3.0	- 2.0
1983	- 5.1	- 5.5	- 5.2	- 7.6	- 5.7	- 3.7	- 2.3	0.8	5.5	8.3	7.2	2.3	- 0.9
1984	- 2.1	- 3.3	- 4.4	- 7.2	- 7.8	- 2.4	- 2.5	1.2	6.2	7.5	8.5	4.6	- 0.1
1985	- 0.8	- 5.8	- 5.2	- 3.3	-10.7	- 7.1	- 7.4	- 0.4	2.8	7.2	6.1	3.6	- 1.7
1986	- 5.0	- 7.2	- 3.6	- 4.8	- 6.1	- 7.3	- 6.3	0.6	--	--	--	4.0	N/A
1987	0.2	- 5.3	- 4.8	- 6.2	- 4.5	- 5.7	- 2.7	1.0	2.4	7.9	9.0	2.3	- 0.5
1988	- 1.8	- 4.4	- 7.4	- 6.0	- 6.1	--	--	--	4.9	6.9	6.1	2.1	N/A
1989	- 1.9	- 5.9	- 6.7	-14.0	- 4.1	- 5.8	- 1.5	1.3	5.1	9.9	8.2	4.2	- 0.9
1990	- 2.7	- 8.3	- 4.8	- 8.8	--	--	0.5	2.4	6.9	8.1	8.1	4.5	N/A
1991	- 1.6	- 9.3	- 6.4	- 6.8	- 6.9	- 5.7	- 3.2	0.5	6.0	6.5	6.3	3.6	- 1.4
1992	- 1.9	- 3.5	- 6.9	- 5.9	- 9.3	- 8.2	- 4.0	0.2	5.8	7.1	5.0	0.1	- 1.8
1993	- 2.4	- 3.8	- 8.0	-10.0	- 4.9	- 5.6	- 1.3	3.6	5.8	10.2	8.0	3.1	- 0.4
1994	0.1	--	--	--	-10.9	- 7.0	- 1.5	0.7	6.3	7.5	10.0	3.8	N/A
												Average annual recorded air temperature, 1967-94	- 1.4

Note: Calculated "average" annual temperatures are weighted by month.

Table 3. Monthly and annual precipitation catch at 990 meters altitude, Wolverine Glacier basin, 1967-94 hydrologic years

[Data in millimeters; annual total is referenced as "N/A" if cumulative record is not available[1]; (--) monthly record missing]

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Additional record	Annual total
1967	--	--	--	--	--	--	--	--	29	46	106	414	--	N/A
1968	--	--	--	--	--	--	--	72	33	26	49	110	--	N/A
1969	51	92	64	12	94	57	95	79	21	44	27	128	--	764
1970	365	142	246	22	163	143	48	37	20	50	109	33	--	1378
1971	164	61	83	73	153	113	146	139	49	46	108	--	34	1169
1972	94	86	59	30	34	24	32	51	29	19	124	108	--	690
1973	81	68	53	55	63	62	111	99	34	63	45	130	--	864
1974	70	24	127	36	54	38	79	26	32	31	19	209	--	745
1975	161	148	66	50	138	64	53	62	20	10	31	159	--	962
1976	72	13	138	96	29	50	128	32	21	13	128	426	--	1146
1977	--	--	--	--	--	51	75	49	29	26	94	127	703	1154
1978	180	13	25	54	276	62	--	--	--	--	--	--	436	1046
1979	219	68	92	81	25	81	36	19	42	70	115	276	--	1124
1980	292	313	153	253	276	142	132	74	45	55	63	213	--	2011
1981	278	100	34	280	156	237	8	18	55	83	221	163	--	1633
1982	99	126	100	28	28	32	54	17	51	49	42	207	--	833
1983	71	89	165	77	78	12	60	49	28	58	82	27	--	796
1984	91	138	46	170	93	44	50	16	31	34	55	240	--	1008
1985	131	32	116	181	40	189	56	25	53	19	70	124	--	1036
1986	28	31	169	175	113	13	18	18	--	--	--	62	--	N/A
1987	224	90	178	261	120	88	52	13	135	31	17	207	--	1416
1988	172	97	105	101	162	213	173	9	18	8	160	178	--	1396
1989	92	42	210	59	4	11	19	32	45	37	105	156	--	812
1990	171	57	131	114	--	--	28	16	36	92	60	188	134	1027
1991	82	28	61	76	42	72	85	46	18	89	52	216	--	867
1992	32	35	139	150	48	134	35	16	22	54	145	13	--	823
1993	102	152	67	69	83	96	91	10	16	22	123	166	--	997
1994	133	--	--	--	10	87	29	47	33	37	28	178	309	891
													Average annual recorded precipitation catch, 1967-94	1064

[1]Because the gage is a storage type gage, valid annual precipitation catch can be measured and reported for those years that have missing monthly data, provided that the gage was operational and that periods of missing data do not overlap with the beginning or ending months of a separate hydrologic year. The "Additional record" column includes precipitation-catch storage values measured for 1971, 1977, 1978, 1990, and 1994 and any partial monthly data recorded for those hydrologic years.

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1967 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-66	Nov-66	Dec-66	Jan-67	Feb-67	Mar-67	Apr-67	May-67	June-67	July-67	Aug-67	Sept-67
1	--	--	--	--	--	--	--	--	0.4	1.9	7.3	6.4
2	--	--	--	--	--	--	--	--	1.2	7.5	7.9	5.5
3	--	--	--	--	--	--	--	--	1.1	8.2	7.1	6.1
4	--	--	--	--	--	--	--	--	1.0	5.2	6.3	5.1
5	--	--	--	--	--	--	--	--	0.9	4.0	6.6	2.8
6	--	--	--	--	--	--	--	--	2.0	3.2	7.2	2.6
7	--	--	--	--	--	--	--	--	1.5	7.6	5.8	2.0
8	--	--	--	--	--	--	--	--	3.3	3.4	6.1	3.5
9	--	--	--	--	--	--	--	--	3.5	9.3	5.9	3.3
10	--	--	--	--	--	--	--	--	5.8	14.1	5.9	3.7
11	--	--	--	--	--	--	--	--	8.2	13.3	6.4	3.2
12	--	--	--	--	--	--	--	--	3.8	9.5	6.6	2.6
13	--	--	--	--	--	--	--	--	2.8	11.7	5.8	3.2
14	--	--	--	--	--	--	--	--	3.6	11.9	7.1	2.9
15	--	--	--	--	--	--	--	--	6.2	11.0	7.9	2.5
16	--	--	--	--	--	--	--	--	6.1	6.0	6.5	3.5
17	--	--	--	--	--	--	--	--	8.1	5.8	6.2	5.2
18	--	--	--	--	--	--	--	--	6.9	5.8	5.8	2.2
19	--	--	--	--	--	--	--	--	8.5	4.2	6.6	1.8
20	--	--	--	--	--	--	--	--	6.1	4.9	8.3	2.0
21	--	--	--	--	--	--	--	--	5.1	7.9	5.3	3.2
22	--	--	--	--	--	--	--	--	9.6	8.9	7.3	1.6
23	--	--	--	--	--	--	--	--	9.6	12.9	5.8	2.2
24	--	--	--	--	--	--	--	--	4.6	12.9	4.0	3.0
25	--	--	--	--	--	--	--	--	5.0	11.5	4.6	1.0
26	--	--	--	--	--	--	--	--	5.4	6.0	4.9	2.0
27	--	--	--	--	--	--	--	--	4.6	10.0	6.5	2.0
28	--	--	--	--	--	--	--	--	4.7	11.8	9.1	1.8
29	--	--	--	--		--	--	--	3.3	10.0	7.9	1.8
30	--	--	--	--		--	--	--	1.9	5.2	7.4	3.0
31	--		--	--		--		--		6.0	8.2	
Monthly Average	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.5	8.1	6.6	3.1

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1968 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-67	Nov-67	Dec-67	Jan-68	Feb-68	Mar-68	Apr-68	May-68	June-68	July-68	Aug-68	Sept-68
1	3.0	- 2.8	-13.0	- 3.5	-17.1	- 2.0	-1.5	- 3.5	3.0	5.0	6.5	6.6
2	4.2	- 1.8	-14.0	- 4.5	-17.0	- 3.6	-1.0	- 2.9	4.0	4.6	6.0	5.5
3	5.0	- 2.0	-19.0	- 6.0	-19.5	- 3.0	-1.0	- 1.4	1.2	5.2	8.5	6.0
4	2.0	- 2.2	-16.5	- 5.6	-21.2	- 3.0	-2.5	- 3.8	1.3	9.0	13.0	5.5
5	0.8	- 5.5	- 9.6	- 7.0	-13.4	- 2.0	- 1.5	- 3.0	2.5	9.2	16.5	6.0
6	1.5	- 7.0	- 7.8	- 5.2	- 4.4	- 4.0	- 4.4	- 3.5	1.2	7.5	17.5	5.5
7	- 0.5	- 6.5	- 6.5	- 1.8	- 3.5	- 5.0	- 4.5	- 3.0	- 0.5	8.9	16.5	4.5
8	3.0	- 3.2	- 8.0	- 3.7	- 3.0	- 4.0	- 9.7	- 0.6	0.5	6.3	10.3	3.5
9	1.8	- 3.7	- 8.2	- 4.5	- 2.6	- 3.5	-10.2	0.7	4.3	5.8	8.2	3.2
10	2.8	- 3.3	-12.5	- 7.5	- 3.7	- 3.6	-10.0	1.0	6.8	7.5	5.5	2.5
11	2.0	- 3.2	- 9.4	-13.6	- 1.8	- 2.8	- 7.3	5.4	3.5	5.2	6.0	3.2
12	1.3	- 2.0	- 4.5	-16.5	- 1.0	- 4.8	- 5.5	9.0	4.0	5.6	6.5	2.0
13	- 0.5	- 2.2	- 4.0	-17.0	0.0	- 3.0	- 5.0	7.0	3.5	7.5	5.5	3.2
14	- 1.0	- 3.5	- 4.2	-13.3	0.0	- 4.0	- 4.0	5.2	2.8	5.0	5.0	5.0
15	- 1.3	- 3.6	- 6.8	-17.0	- 1.2	- 7.0	- 3.0	1.2	3.0	6.0	5.5	3.5
16	- 0.8	- 3.4	- 8.7	-13.0	- 2.5	- 8.5	- 2.5	0.8	3.0	7.0	6.5	3.0
17	- 1.5	- 3.1	-10.0	-10.5	- 5.1	-12.0	- 4.3	5.3	2.8	6.5	10.0	3.5
18	- 4.0	- 3.0	- 9.5	-14.1	- 5.6	-14.0	- 5.1	4.4	6.0	6.2	11.5	2.5
19	- 3.0	- 1.2	- 8.0	-14.0	- 5.5	-12.8	- 3.4	7.5	6.8	9.5	11.0	1.5
20	- 3.5	- 0.8	- 8.0	-14.7	- 5.0	- 7.0	- 4.2	11.2	3.0	9.5	6.2	1.7
21	- 3.2	- 2.0	- 9.2	-13.0	- 4.0	- 2.4	- 3.9	8.5	1.5	8.7	6.0	1.4
22	- 3.5	- 3.2	-10.5	- 4.6	- 3.5	- 5.5	- 1.3	3.0	3.0	7.3	6.8	1.0
23	- 6.2	- 9.0	- 7.0	- 8.0	- 3.5	- 6.0	- 1.5	2.8	2.2	6.9	7.0	1.0
24	- 7.2	-15.0	- 7.0	- 7.8	- 3.0	-4.5	0.4	1.0	2.8	10.0	7.5	1.0
25	- 6.5	- 9.5	- 4.5	- 6.0	- 3.0	-3	- 0.7	2.5	3.3	12.0	6.5	0.5
26	- 1.5	- 5.8	- 3.5	- 6.0	- 3.0	1.0	- 3.0	3.2	4.0	8.2	7.5	0.0
27	- 1.0	- 4.9	- 3.2	- 6.0	- 2.0	-2.0	- 1.0	2.2	7.2	7.0	8.5	0.5
28	- 4.0	- 7.0	- 2.8	- 5.2	- 1.8	-2.5	- 1.3	1.2	13.0	7.0	10.0	0.5
29	- 3.2	-12.0	- 2.4	- 5.5	- 3.5	-3.0	- 2.8	2.5	13.5	6.5	7.3	- 1.0
30	- 3.0	-16.0	- 3.0	-13.0		-4.0	- 4.6	1.3	10.0	7.0	5.0	- 3.0
31	- 4.0		- 4.0	-18.5		-4.0		0.8		7.5	7.2	
Monthly Average	-1.0	-4.9	-7.9	-9.2	-5.5	-4.7	-3.7	2.1	4.1	7.3	8.4	2.7

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1969 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-68	Nov-68	Dec-68	Jan-69	Feb-69	Mar-69	Apr-69	May-69	June-69	July-69	Aug-69	Sept-69
1	- 2.4	- 3.5	-12.5	-23.0	-11.4	- 4.6	- 2.6	- 3.8	1.2	8.4	9.8	6.8
2	- 1.0	- 3.3	-14.4	-18.5	-14.0	- 6.0	- 2.4	- 3.0	5.0	12.0	11.2	5.0
3	- 1.0	- 3.9	-16.2	-16.6	-16.8	- 5.2	- 1.0	- 3.8	4.2	8.2	9.4	3.6
4	- 1.0	- 4.0	-13.8	-13.2	-11.8	- 4.4	- 3.6	- 3.0	2.0	5.8	7.2	4.8
5	- 1.8	- 3.1	-17.5	-15.0	-10.8	- 4.2	- 4.6	- 1.8	0.0	5.8	8.4	2.8
6	- 1.2	- 2.5	-12.5	-14.2	- 8.0	- 4.2	- 4.0	- 4.0	1.8	6.6	8.4	4.2
7	- 1.3	- 2.4	-11.2	-11.0	- 6.6	- 3.6	- 3.8	- 3.4	1.6	6.2	6.8	4.4
8	- 0.2	- 2.6	-11.7	-15.2	- 8.4	- 4.6	- 4.2	- 0.8	2.0	5.8	6.0	2.0
9	- 1.6	- 4.1	-17.0	-17.1	- 7.4	- 3.8	- 3.2	0.2	2.6	7.4	4.0	4.0
10	- 2.7	- 6.3	-12.2	-16.0	- 6.0	- 4.0	- 3.6	- 0.4	3.4	8.0	6.0	1.8
11	- 4.8	- 8.1	- 8.6	-17.2	- 4.0	- 5.4	- 3.8	- 1.0	4.0	7.8	6.2	3.4
12	- 4.2	- 7.0	-10.4	-17.8	- 4.2	- 6.6	- 3.8	0.2	6.0	6.8	3.4	5.8
13	- 4.3	- 9.3	- 8.0	-12.2	- 4.0	- 6.4	- 3.4	3.4	13.6	7.0	1.8	6.2
14	- 5.5	- 8.5	- 7.5	-11.3	- 4.2	- 9.8	- 4.0	2.0	15.0	6.0	4.0	2.8
15	- 5.8	- 6.9	- 6.2	-12.7	- 2.6	-12.0	- 3.6	- 0.2	12.0	6.2	3.4	2.6
16	- 6.0	- 4.8	-14.7	-10.8	- 4.8	- 8.8	- 1.0	0.0	5.8	6.0	3.4	5.2
17	- 6.6	- 3.7	-16.2	-10.1	- 5.0	- 8.2	- 2.2	2.0	4.6	5.6	6.8	7.0
18	- 4.6	- 3.6	-12.3	- 9.9	- 5.6	- 7.4	- 1.6	8.0	3.2	4.8	7.4	5.8
19	- 7.4	- 4.0	- 6.4	-10.1	- 5.8	- 7.0	- 1.2	5.8	4.0	5.2	8.4	5.2
20	- 6.8	- 4.0	- 2.3	- 8.0	- 6.2	- 4.2	- 2.0	0.6	6.0	5.4	7.6	3.6
21	- 5.7	- 4.5	- 4.0	- 9.5	- 6.0	- 4.6	- 2.0	1.4	4.8	8.0	6.4	6.8
22	- 4.0	- 7.4	1.0	- 9.4	- 5.6	- 5.4	- 2.8	2.2	5.0	7.8	3.2	4.8
23	- 2.6	- 6.0	2.1	- 6.6	- 6.0	- 5.0	- 1.6	5.0	6.6	10.0	1.4	4.6
24	- 3.1	- 4.2	- 0.8	- 2.1	- 6.0	- 5.4	- 1.4	10.2	8.0	6.0	6.0	6.4
25	- 3.9	- 4.3	0.5	- 3.0	- 4.6	- 6.4	- 3.0	8.4	10.4	5.8	9.2	5.8
26	- 4.0	- 7.6	- 6.9	- 6.0	- 4.6	- 5.2	- 3.6	6.4	13.2	8.0	6.6	2.8
27	- 4.3	- 8.8	- 8.4	- 5.8	- 5.0	- 4.6	- 3.0	- 0.4	15.8	8.0	7.2	1.8
28	- 6.6	-12.0	- 9.5	- 6.8	- 4.4	- 4.2	- 3.8	0.2	12.8	4.4	3.4	1.8
29	- 6.1	-13.8	-10.1	- 8.0		- 3.6	- 3.8	2.4	12.0	5.2	4.0	2.2
30	- 6.3	-15.8	-11.4	- 8.4		- 2.8	- 4.0	0.0	7.2	6.0	4.0	1.6
31	- 5.2		-18.0	- 9.6		- 2.4		- 0.8		7.0	4.6	
Monthly Average	-3.9	-6.0	-9.6	-11.5	-6.8	-5.5	-3.0	1.0	6.5	6.8	6.0	4.2

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1970 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-69	Nov-69	Dec-69	Jan-70	Feb-70	Mar-70	Apr-70	May-70	June-70	July-70	Aug-70	Sept-70
1	2.2	- 0.4	- 4.8	- 5.6	-10.4	1.0	- 6.0	- 2.8	0.2	7.8	4.4	4.8
2	1.8	- 0.4	- 2.6	- 5.4	- 4.8	- 1.4	- 7.0	- 1.6	1.8	4.4	3.4	7.4
3	0.6	- 1.8	- 2.8	- 6.0	- 7.8	- 6.6	- 6.8	- 2.6	2.0	5.6	5.2	6.0
4	1.2	- 3.2	- 3.6	- 9.8	- 5.0	- 6.2	- 9.6	- 2.8	1.0	3.2	8.0	2.0
5	1.0	- 5.0	- 3.4	-12.4	- 3.6	- 4.0	-11.2	- 2.2	2.2	2.0	4.8	3.8
6	2.8	- 6.0	- 2.2	-12.0	- 4.0	- 4.0	- 7.8	- 3.8	8.0	2.8	5.2	3.4
7	2.0	-4	- 2.0	- 8.4	- 3.4	- 6.0	- 6.8	- 2.8	7.2	5.8	4.6	0.8
8	1.0	-2.5	- 2.4	- 7.8	- 5.8	- 7.2	- 5.8	0.4	0.2	4.6	3.2	- 2.0
9	0.2	-3.5	- 3.0	- 8.0	- 5.6	- 4.6	- 4.2	3.2	1.8	3.0	4.8	0.2
10	- 1.6	-7	- 4.4	- 9.6	- 3.0	- 2.2	- 8.2	4.4	2.2	2.4	5.0	1.6
11	1.0	-8.5	- 4.4	-15.2	- 2.0	- 0.6	- 9.2	5.0	0.4	2.0	8.6	2.4
12	2.0	-7	- 6.0	-17.0	0.0	- 2.2	- 5.2	4.8	0.2	2.2	6.0	3.8
13	1.8	-2.5	- 4.4	-16.8	0.0	- 3.4	- 3.8	2.2	1.0	3.2	3.2	6.4
14	3.2	-5	- 6.4	-13.4	- 0.2	- 4.0	- 3.2	- 0.2	1.6	3.6	3.4	4.0
15	9.0	-8	- 5.0	-11.2	- 2.2	- 3.6	- 2.6	- 1.0	0.2	2.2	3.8	1.8
16	6.4	-10.5	- 3.0	-11.8	- 4.4	- 2.6	- 3.8	- 0.2	2.2	3.8	3.2	2.2
17	2.4	-13.5	- 1.2	-16.0	- 3.6	- 3.2	- 3.4	- 1.6	3.0	5.4	3.2	3.2
18	1.0	-10	- 1.8	-12.8	- 3.4	- 3.8	- 1.4	- 1.4	0.8	2.6	3.2	3.0
19	0.2	-6	- 1.4	- 5.8	- 3.4	- 3.4	- 2.0	- 0.8	1.6	2.4	3.0	0.8
20	1.4	- 2.0	- 1.8	- 2.2	- 4.6	- 4.4	- 3.8	0.0	1.8	4.6	3.0	- 1.2
21	- 1.0	- 2.6	- 2.6	- 1.8	- 4.4	- 3.8	- 4.0	0.8	3.2	2.0	2.8	- 2.8
22	- 0.2	- 2.8	- 3.6	- 2.6	- 3.0	- 4.2	- 5.2	- 0.2	3.2	3.4	2.6	- 2.0
23	- 1.0	- 4.0	- 4.6	- 2.8	- 3.6	- 3.4	- 4.2	- 1.2	4.6	5.4	1.6	- 1.8
24	1.4	- 4.4	- 4.0	- 5.2	- 4.0	- 4.6	- 3.6	- 0.4	2.0	7.6	3.4	- 2.0
25	2.2	- 3.8	- 3.8	- 5.0	- 3.2	- 3.6	- 4.0	2.2	3.4	11.6	6.0	1.0
26	2.2	- 3.2	- 4.8	- 6.2	- 1.0	- 2.4	- 3.4	3.0	3.2	14.0	7.4	1.6
27	1.0	- 3.8	- 3.6	-10.4	- 1.4	- 2.6	- 3.8	1.2	3.0	12.8	6.4	0.2
28	- 1.0	- 2.6	- 3.2	-10.2	2.8	- 2.2	- 2.2	1.0	2.4	10.4	4.2	- 0.2
29	1.0	- 4.8	- 3.8	-11.4		- 3.0	- 2.4	1.2	3.0	6.0	4.0	- 0.8
30	0.2	- 6.0	- 4.2	- 7.4		- 2.4	- 2.6	0.6	5.2	3.8	3.4	- 0.2
31	0.6		- 4.0	- 6.6		- 3.2		0.8		4.0	4.0	
Monthly Average	1.5	-4.8	-3.5	-8.9	-3.4	-3.5	-4.9	0.2	2.4	5.0	4.4	1.6

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1971 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-70	Nov-70	Dec-70	Jan-71	Feb-71	Mar-71	Apr-71	May-71	June-71	July-71	Aug-71	Sept-71
1	0.8	- 2.4	-14.1	-12.2	-11.3	- 4.7	- 7.9	- 4.2	- 3.1	1.4	10.4	2.4
2	- 0.5	- 0.8	-16.5	- 8.8	-12.2	- 8.3	- 7.3	- 3.5	- 1.9	1.4	12.0	2.2
3	- 3.7	0.6	-16.5	- 4.7	-12.4	-17.1	- 5.6	- 4.5	0.0	2.6	13.1	2.2
4	- 2.8	1.6	-15.8	- 3.4	-11.3	-24.8	- 4.5	- 5.4	4.0	9.0	14	0.6
5	- 1.5	0.0	- 8.6	- 2.6	- 7.3	-26.7	- 6.0	- 3.0	6.6	11.6	12	- 0.5
6	- 1.0	0.4	-11.1	- 9.8	- 4.1	-25.4	- 6.9	- 3.0	7.4	11.8	10.4	--
7	- 1.6	0.0	- 8.8	-10.0	- 3.2	-19.0	- 7.6	- 5.2	4.6	12.4	9.9	--
8	- 0.4	0.0	- 9.4	-10.0	- 3.5	-16.7	- 6.6	- 4.7	2.6	11.4	9.1	--
9	- 2.0	- 1.0	- 8.3	-14.7	- 4.7	-16.0	- 6.4	- 5.2	3.0	14.6	10	--
10	- 1.2	- 0.8	- 6.8	-12.0	- 7.5	-12.0	- 7.3	- 3.5	4.2	16.2	8.9	--
11	- 2.8	- 0.2	- 6.6	- 7.1	- 5.8	- 9.8	- 6.4	- 1.9	3.6	15.0	9.1	--
12	- 1.0	- 0.2	- 3.7	- 6.9	- 4.1	- 8.1	- 5.4	- 0.7	2.4	11.4	7.1	--
13	- 1.0	- 2.4	- 3.4	-12.0	- 4.7	-12.6	- 5.8	- 3.5	3.2	7.0	7.4	--
14	- 3.1	- 1.0	- 4.1	-14.7	- 3.2	-12.6	- 4.9	- 4.0	2.2	7.6	8.4	--
15	- 6.7	- 3.3	- 4.7	-20.1	- 5.8	-11.1	- 7.3	- 3.1	1.6	6.6	6.9	--
16	- 6.4	- 6.9	- 4.5	-21.6	- 7.7	- 6.2	- 4.5	- 8.9	0.6	5.8	6	--
17	- 8.6	- 7.5	- 4.5	-20.3	- 6.0	- 4.7	- 5.8	- 4.2	0.6	4.8	6.0	--
18	- 9.6	- 7.1	- 5.8	-19.6	- 6.2	- 6.2	- 4.9	- 0.7	1.6	5.0	6.2	--
19	- 9.2	- 8.8	- 3.0	-17.1	- 6.9	- 4.1	- 6.2	- 1.7	2.6	5.4	6.2	--
20	-10.1	- 7.5	- 1.2	-18.6	- 4.7	- 4.1	- 7.1	- 3.1	6.6	4.8	7.4	--
21	- 9.4	-10.5	- 6.2	-18.6	- 4.3	- 6.2	- 6.6	- 2.8	3.6	2.8	4.2	--
22	-10.7	-11.5	- 5.4	-22.8	-10.9	- 9.4	- 5.1	- 1.4	5.0	2.8	5.6	--
23	-12.8	-10.1	- 3.7	-24.3	-18.6	-12.4	- 3.5	- 1.0	11.4	2.6	4.4	--
24	-12.0	- 6.9	- 7.5	-25.6	-20.7	-10.5	- 5.6	1.4	7.6	3.6	5.0	--
25	- 9.6	- 5.6	- 7.5	-16.9	-21.1	- 9.6	- 3.9	- 2.6	11.4	4.8	4.2	--
26	- 4.5	- 4.5	-15.8	-11.1	-16.2	-10.1	0.4	- 1.9	8.6	4.6	3.6	--
27	- 2.8	- 3.7	-17.1	-14.1	-11.5	- 7.8	- 0.5	- 2.1	5.0	4.2	5.0	--
28	- 1.6	- 8.8	-17.5	-14.7	- 8.4	- 5.4	- 1.9	- 2.6	4.6	4.9	5.2	--
29	- 2.4	-15.4	-14.9	-14.5		- 4.3	- 3.8	- 2.4	2.6	6.4	5.8	--
30	- 0.8	-13.2	-17.1	-13.0		- 4.9	- 4.2	- 1.9	1.0	6.8	6.0	--
31	0.4		-15.2	- 8.8		- 7.3		- 1.9		8.4	5.6	
Monthly Average	-4.5	-4.6	-9.2	-13.9	-8.7	-10.9	-5.3	-3.0	3.8	7.0	7.6	N/A

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1972 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-71	Nov-71	Dec-71	Jan-72	Feb-72	Mar-72	Apr-72	May-72	June-72	July-72	Aug-72	Sept-72
1	1	- 8.6	-10.2	- 9.7	- 3.8	-12.1	- 8.6	- 3.7	1.4	3.6	7.2	6.2
2	0.9	-10.4	- 8.3	- 8.1	- 3.7	-16.0	- 6.0	- 3.9	- 1.5	4.4	6.9	7.0
3	0.1	- 7.2	-14.7	- 7.9	- 4.3	-14.8	- 6.0	- 3.1	- 1.5	9.2	9.5	5.2
4	-0.9	- 7.0	-12.1	- 7.4	- 6.2	-13.8	- 6.0	- 2.8	- 1.5	14.1	8.2	3.0
5	-2.1	- 5.5	- 9.5	- 9.3	-10.5	-16.4	-10.0	0.2	- 1.1	15.7	6.7	2.9
6	-3.8	- 5.5	- 4.4	- 9.7	-14.3	-16.7	- 8.3	1.1	- 0.2	16.1	5.1	4.6
7	-1.4	- 3.4	- 3.2	-14.1	- 7.6	-17.8	- 7.7	1.8	3.0	16.1	7.3	5.7
8	0.2	- 8.2	- 4.8	-16.8	- 4.2	-19.0	-10.9	6.7	2.8	16.4	10.8	4.5
9	-0.3	-10.6	- 9.4	-24.5	- 7.1	-21.2	- 8.4	2.6	- 0.5	14.3	13.2	3.8
10	-1.1	- 6.0	-12.1	-24.6	- 7.5	-14.1	-10.2	- 1.5	2.4	8.5	13.6	4.7
11	-2.8	- 5.8	-14.0	-22.3	- 6.0	-10.9	- 7.1	- 0.5	5.5	9.2	12.1	3.9
12	-3.3	- 7.9	-12.8	-18.3	- 9.1	-15.4	- 6.9	- 0.2	3.1	13.8	6.6	4.8
13	-2.9	- 7.4	- 9.4	-12.8	-11.4	- 9.8	-12.1	0.0	4.4	8.0	6.7	2.3
14	- 3.6	- 5.1	- 5.9	-10.6	- 8.0	-11.9	-12.7	- 1.0	6.0	6.5	8.0	1.6
15	- 2.9	- 3.9	- 5.8	-19.0	-12.7	-10.4	-12.9	- 1.3	5.1	5.9	7.7	1.9
16	- 1.3	- 3.2	- 7.6	-21.6	-17.8	-10.9	-10.6	- 1.0	2.4	5.7	8.4	- 1.7
17	0.0	- 3.4	- 8.6	-17.5	-22.0	-10.6	- 6.5	- 3.7	0.5	5.7	10.5	- 2.2
18	- 3.4	- 1.8	- 6.7	-12.8	-13.5	- 3.7	-10.4	- 2.8	0.4	5.5	9.4	- 1.8
19	- 5.8	- 3.2	-16.6	-10.8	- 9.2	- 3.1	-10.6	- 0.9	2.4	8.5	5.7	0.0
20	- 4.1	- 3.4	-19.4	- 9.0	-10.5	- 5.7	- 5.7	- 2.1	2.1	10.9	6.2	4.1
21	- 1.8	- 3.9	-16.4	- 8.0	- 8.6	- 5.0	- 7.1	- 3.3	2.4	11.3	5.7	2.3
22	- 4.6	- 7.1	-12.9	-10.6	- 1.5	- 3.4	- 7.4	- 1.2	2.8	12.5	5.7	1.4
23	- 8.8	- 7.9	- 7.2	-10.8	0.0	- 7.1	- 6.2	- 2.3	1.6	13.0	3.9	- 0.8
24	-12.8	- 4.7	- 0.9	-10.8	- 3.7	- 6.2	- 6.2	- 1.9	3.9	12.0	3.4	0.0
25	-10.6	- 8.3	- 5.8	- 8.0	- 8.3	- 5.6	- 5.9	- 1.1	2.6	8.0	6.2	- 0.5
26	- 5.8	-14.0	- 4.4	- 6.4	- 3.9	- 4.1	- 4.2	0.9	1.1	8.7	7.9	- 1.3
27	- 4.1	-11.7	- 4.7	- 6.0	-10.0	- 4.2	- 4.6	0.3	2.4	6.9	5.7	0.7
28	- 4.7	-16.1	- 5.9	- 5.0	-11.4	- 9.7	- 2.8	- 0.9	2.8	6.4	6.5	0.5
29	- 7.2	-19.6	- 8.6	- 8.0	-12.9	-12.3	- 3.9	3.1	2.6	8.5	4.4	1.6
30	- 5.8	-14.0	- 5.5	- 9.4		-12.2	- 4.5	5.4	3.3	9.8	3.6	- 3.3
31	- 6.3		- 8.6	- 6.9		-10.6		2.4		7.7	5.1	
Monthly Average	-3.5	-7.5	-8.9	-12.2	-8.6	-10.8	-7.7	-0.5	2.0	9.8	7.4	2.0

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1973 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-72	Nov-72	Dec-72	Jan-73	Feb-73	Mar-73	Apr-73	May-73	June-73	July-73	Aug-73	Sept-73
1	- 6.0	- 3.8	- 9.0	- 7.2	- 9.3	- 7.1	- 4.3	- 2.0	- 0.6	2.6	4.2	2.8
2	- 8.6	- 4.6	- 6.5	- 7.8	- 4.9	- 7.8	- 3.9	- 1.6	- 0.1	5.4	4.0	5.4
3	- 9.4	- 1.0	- 7.7	- 7.2	- 4.0	- 8.6	- 3.0	- 2.0	- 1.4	4.0	5.8	3.6
4	- 5.7	- 5.2	- 0.3	- 7.0	- 0.7	- 7.3	- 3.2	- 2.6	0.6	6.8	6.0	3.2
5	- 1.4	- 6.0	- 5.8	- 6.2	- 1.8	- 6.5	- 4.9	- 2.3	0.8	8.2	4.6	2.8
6	- 1.4	- 6.0	- 1.8	- 6.0	- 3.7	- 5.0	- 4.5	- 3.9	0.8	10.8	4.8	2.6
7	- 4.4	- 6.0	- 2.3	- 4.7	- 2.6	- 3.5	- 3.2	- 3.0	2.2	9.8	4.8	1.4
8	- 5.8	- 2.4	- 2.6	- 4.7	- 3.0	- 2.7	- 3.1	- 1.0	1.4	4.0	4.4	1.0
9	- 5.2	- 3.4	- 4.6	- 2.0	- 5.7	- 3.4	- 3.9	- 1.3	0.8	5.0	4.2	2.0
10	- 3.6	- 6.0	- 2.7	- 1.6	- 6.8	- 5.0	- 4.5	- 1.9	1.0	6.4	3.8	3.2
11	- 2.2	- 7.8	- 4.5	- 5.7	- 9.8	- 5.3	- 2.5	- 1.9	4.2	4.4	3.8	2.8
12	- 0.2	- 8.0	- 9.0	-14.9	-13.5	- 4.0	- 3.2	- 0.3	7.0	3.2	5.2	2.6
13	0.0	- 5.8	-10.1	-18.2	- 8.7	- 7.5	- 3.5	1.0	6.4	3.8	3.6	2.4
14	1.8	- 5.0	-17.3	-21.0	- 6.5	- 8.7	- 3.4	2.3	5.2	3.6	5.2	2.0
15	1.0	- 5.6	-15.7	-20.3	- 5.0	- 9.0	- 3.3	- 0.3	2.8	4.6	7.2	4.8
16	1.8	- 4.2	-12.8	-18.3	- 4.3	- 8.6	- 2.3	- 0.5	5.4	4.2	8.4	3.4
17	- 0.2	- 5.2	- 8.7	-12.0	- 3.9	- 8.5	- 2.8	- 0.8	7.4	5.2	10.2	4.0
18	- 3.0	- 5.0	- 8.7	-11.2	- 3.3	-13.0	- 2.9	- 0.7	3.8	7.0	11.0	6.2
19	- 4.8	- 3.3	- 7.8	-13.7	- 3.5	- 9.0	- 3.4	- 0.6	4.0	7.2	12.0	4.0
20	- 4.0	- 2.8	- 9.9	-20.2	- 3.3	- 7.7	- 3.9	- 2.3	3.4	8.4	9.2	2.8
21	- 3.4	- 4.6	-10.2	-16.8	- 4.2	- 6.3	- 1.9	- 1.5	6.0	6.6	6.8	1.4
22	- 2.0	- 5.1	-10.5	-20.4	- 5.8	- 4.1	- 1.6	- 2.2	3.2	4.6	6.0	0.6
23	- 2.0	- 7.6	- 7.0	-23.6	- 3.9	- 2.3	- 3.0	0.2	6.4	5.6	8.2	0.2
24	- 2.4	- 6.3	- 4.9	-21.2	- 4.2	- 1.9	- 3.4	0.6	4.8	7.4	5.0	0.0
25	- 1.8	- 5.3	- 4.0	-15.8	- 6.6	- 3.7	- 3.2	- 0.2	2.4	5.2	4.6	- 0.8
26	- 3.8	- 9.2	- 6.0	- 9.9	- 8.0	- 2.3	- 4.3	- 1.8	2.6	4.0	4.8	- 0.2
27	- 3.2	- 6.3	- 8.0	- 4.6	- 9.8	- 4.1	- 4.7	- 1.3	3.6	5.0	4.2	- 1.2
28	- 3.8	- 6.3	- 4.9	- 3.2	- 6.9	- 3.1	- 3.5	- 1.5	6.2	5.4	4.6	- 1.4
29	- 2.8	- 7.9	- 4.9	- 3.7		- 3.0	- 2.3	0.6	4.4	4.2	3.0	0.0
30	- 2.2	- 9.2	- 5.8	-12.1		- 3.8	- 2.1	2.0	2.0	4.0	2.0	0.4
31	- 2.8		- 9.3	-13.0		- 3.6		- 0.3		4.2	0.8	
Monthly Average	-3.0	-5.5	-7.2	-11.4	-5.5	-5.7	-3.3	-1.0	3.2	5.5	5.6	2.1

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1974 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-73	Nov-73	Dec-73	Jan-74	Feb-74	Mar-74	Apr-74	May-74	June-74	July-74	Aug-74	Sept-74
1	0.2	- 2.4	- 9.2	- 0.4	-11.8	-13.5	- 4.6	2.1	3.1	11.9	6.7	9.0
2	- 1.4	- 3.8	-11.7	- 4.9	- 9.7	-11.3	- 4.5	- 0.2	2.4	9.2	7.3	9.3
3	- 1.4	- 6.5	-12.2	- 1.5	- 8.0	-13.7	- 4.8	- 0.8	1.7	6.7	7.2	10.7
4	- 2.4	- 2.2	- 7.1	3.1	- 9.0	-17.9	- 4.7	- 0.6	1.4	5.5	9.0	9.8
5	- 1.8	- 4.0	- 6.1	3.9	- 6.8	-13.8	- 3.5	- 0.9	1.6	4.4	8.9	8.1
6	- 1.0	- 6.7	- 7.9	3.4	- 5.8	-11.4	- 3.8	1.2	3.0	4.8	6.6	7.3
7	- 2.0	- 7.9	- 8.1	0.3	- 4.9	-17.2	- 5.5	0.9	1.4	4.7	6.5	6.4
8	- 2.8	- 9.0	- 6.0	- 2.2	- 4.8	-10.0	- 5.4	- 0.8	5.2	5.9	4.8	9.3
9	- 2.0	- 8.3	- 4.4	- 6.6	- 6.0	-12.5	- 4.9	- 0.5	7.6	5.5	4.8	7.3
10	- 2.0	- 8.3	- 5.3	- 7.0	- 5.3	-12.8	- 3.2	0.3	10.4	5.8	7.2	5.3
11	- 3.0	-14.1	- 4.3	- 8.2	- 8.9	-10.4	- 1.2	0.8	8.4	5.2	9.2	5.9
12	- 6.0	-13.6	- 6.0	-13.9	-10.3	-12.5	- 5.3	- 3.0	3.8	6.1	11.1	5.4
13	- 5.3	-14.2	- 8.0	-12.3	- 9.2	- 9.9	- 4.1	- 2.3	3.4	6.1	14.1	5.3
14	- 3.3	-12.0	- 7.1	-10.1	-13.0	- 7.0	- 4.0	- 0.5	3.2	7.8	15.5	6.5
15	- 3.6	-11.0	- 6.5	-17.4	-16.3	- 5.4	- 3.9	1.4	2.9	7.6	14.2	5.4
16	- 3.8	-12.1	- 8.1	-12.2	-13.8	- 5.4	- 2.8	3.6	1.4	9.3	14.8	3.4
17	- 3.8	-11.2	- 6.6	-11.1	-11.4	- 5.4	- 3.8	- 0.6	2.3	12.5	13.5	4.0
18	- 4.1	- 8.8	- 5.2	-12.7	-18.2	- 6.1	- 4.0	1.0	1.3	8.9	13.4	3.1
19	- 4.9	- 8.5	- 5.1	-13.8	-12.9	- 4.2	- 2.8	3.3	3.1	5.8	12.2	5.0
20	- 5.0	-10.1	- 8.0	-12.0	-11.2	- 2.5	- 3.4	0.3	6.0	4.3	10.9	6.3
21	- 6.2	-10.1	-12.1	-12.2	-11.8	- 0.9	- 0.2	4.4	3.3	4.2	10.8	5.0
22	- 4.8	- 8.7	-10.1	- 9.8	- 8.2	- 1.7	- 2.1	7.5	9.1	4.1	7.7	4.3
23	- 5.2	- 8.1	- 7.2	- 5.0	- 8.3	- 2.7	- 2.9	7.8	9.8	5.3	5.2	3.1
24	- 4.3	- 7.6	- 6.2	- 5.8	- 5.3	- 1.1	- 0.9	9.0	3.2	5.2	1.6	2.9
25	- 4.2	- 8.0	- 5.6	- 9.0	- 9.0	1.6	- 1.8	10.3	3.4	6.3	3.6	3.1
26	- 2.8	-12.6	- 4.1	-10.3	- 7.0	1.1	- 2.1	5.4	5.3	10.2	5.2	1.7
27	- 2.6	-15.0	- 4.4	-14.2	- 9.3	- 2.1	- 0.5	2.1	8.3	13.3	7.6	1.3
28	- 4.3	-14.2	- 5.2	-19.7	-13.2	- 2.5	- 1.2	7.3	7.3	11.7	8.5	1.3
29	- 3.4	-16.3	- 7.0	-15.8		- 2.3	2.1	9.2	9.6	6.4	9.3	0.3
30	- 4.1	-10.3	- 9.1	-12.9		- 1.6	4.2	7.5	12.5	8.1	13.1	- 0.6
31	- 5.1		- 0.9	-11.9		- 2.9		3.8		6.3	11.4	
Monthly Average	-3.4	-9.5	-6.9	-8.5	-9.6	-7.0	-2.9	2.5	4.8	7.1	9.1	5.2

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1975 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-74	Nov-74	Dec-74	Jan-75	Feb-75	Mar-75	Apr-75	May-75	June-75	July-75	Aug-75	Sept-75
1	- 7.6	- 2.3	- 6.2	-22.2	-10.3	- 4.2	- 8.3	- 1.8	2.2	4.6	5.7	5.3
2	- 8.2	- 2.7	- 7.3	-22.3	-12.9	- 7.1	-10.7	0.4	0.0	6.0	7.8	4.2
3	- 7.4	- 2.0	-12.7	-22.5	- 7.5	- 9.0	- 8.8	- 2.9	1.9	5.0	11.0	3.6
4	- 4.5	- 3.1	- 6.8	-23.1	- 3.8	- 8.0	- 6.3	- 2.9	0.3	3.6	11.5	4.0
5	- 0.4	- 2.2	- 4.6	-21.8	1.9	- 7.9	- 5.5	- 4.2	1.7	8.0	7.3	2.3
6	0.2	- 2.3	- 3.2	-20.9	4.4	- 7.6	- 2.8	- 4.1	0.6	12.5	10.0	2.7
7	- 2.0	- 2.9	- 2.7	-17.9	2.0	- 6.0	- 2.8	- 4.7	1.2	13.9	8.6	1.4
8	- 5.0	- 2.9	- 3.7	-15.9	- 3.5	- 6.1	- 4.9	- 1.5	- 0.4	13.6	6.6	0.6
9	- 6.2	- 4.8	- 4.8	-15.4	- 9.4	- 8.2	- 3.8	2.0	- 0.1	14.5	6.7	1.2
10	- 6.1	- 9.9	- 3.8	-13.3	-16.0	- 7.1	- 3.4	3.8	0.3	12.9	8.0	4.5
11	- 4.8	- 7.2	- 5.1	-11.6	-18.0	- 5.7	- 1.7	1.5	- 0.4	10.7	5.6	4.4
12	- 4.0	- 4.7	- 5.5	-15.8	-16.8	- 6.2	- 4.0	0.3	0.0	5.9	6.7	4.0
13	- 2.0	- 5.7	- 6.4	-17.3	-13.6	- 6.5	- 2.8	- 1.8	1.4	5.8	6.9	4.8
14	- 0.8	- 5.2	- 8.4	-12.4	-11.4	- 6.2	- 2.9	0.2	2.4	6.1	7.5	4.2
15	- 0.5	- 9.3	-11.2	- 6.1	-16.1	- 6.8	- 1.9	- 0.7	5.3	5.3	6.2	3.0
16	- 1.6	-10.7	-14.1	- 4.2	-10.1	- 7.0	- 3.0	- 1.8	6.2	5.8	6.6	2.8
17	- 1.5	-10.1	- 9.4	- 3.8	- 5.6	- 6.2	- 1.7	- 1.5	3.5	7.6	7.8	3.9
18	- 2.5	-12.9	- 6.1	- 3.5	- 7.2	-10.0	- 9.4	1.4	4.5	8.0	4.1	3.7
19	- 4.9	-13.8	- 7.5	- 5.1	-15.7	-11.9	-10.0	- 1.7	1.3	6.4	3.6	2.4
20	- 6.2	-13.0	-11.4	- 6.0	-14.0	-15.2	- 7.1	- 1.5	1.9	5.7	4.4	3.5
21	- 1.3	- 6.1	-11.6	- 4.9	- 5.0	-15.6	- 6.1	- 0.6	3.7	5.4	5.7	3.6
22	- 0.6	- 6.1	- 6.2	- 2.7	- 8.5	-14.0	- 4.2	- 0.7	1.6	5.3	7.5	4.4
23	- 2.7	- 5.0	- 5.1	- 2.9	-10.9	- 9.6	- 2.5	2.5	1.6	5.9	7.3	7.3
24	- 0.8	- 7.8	- 7.4	- 3.8	- 9.7	-10.5	- 3.8	- 0.4	2.3	5.5	5.0	5.5
25	- 1.5	- 6.2	-10.9	- 6.1	- 4.9	-10.3	- 4.9	- 1.3	4.1	5.7	7.1	4.9
26	- 2.5	- 5.0	-12.9	- 5.8	- 5.2	- 8.0	- 4.7	0.1	5.7	7.5	9.4	2.9
27	- 2.8	- 4.0	-16.9	- 5.0	- 7.6	- 2.8	- 5.8	0.5	9.6	9.3	7.6	2.2
28	- 2.8	- 2.6	-13.7	- 4.1	- 7.3	- 3.8	- 5.3	1.2	10.8	8.7	7.4	2.0
29	- 3.9	- 3.0	-13.9	-10.7		- 6.3	- 3.8	1.0	5.3	4.7	8.0	1.5
30	- 2.5	- 5.0	- 7.3	-11.8		- 7.1	- 2.9	1.8	4.4	4.6	5.3	1.5
31	- 2.4		-13.0	-11.6		- 6.1		3.6		5.5	3.3	
Monthly Average	-3.2	-6.0	-8.4	-11.3	-8.7	-8.0	-4.9	-0.4	2.8	7.4	7.0	3.4

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1976 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-75	Nov-75	Dec-75	Jan-76	Feb-76	Mar-76	Apr-76	May-76	June-76	July-76	Aug-76	Sept-76
1	1.5	-15.3	-18.0	- 5.0	- 9.5	- 8.0	- 4.9	2.6	7.0	4.8	14.3	2.5
2	1.2	-13.6	-18.0	- 6.9	- 6.0	- 6.4	- 5.8	- 1.3	5.5	4.6	10.5	2.3
3	5.0	-17.9	-16.6	- 8.0	- 4.8	- 5.0	- 5.7	- 1.8	2.4	4.4	11.8	3.6
4	3.6	-15.2	-20.1	- 9.5	- 3.0	- 4.7	- 5.8	- 1.4	2.6	3.0	11.3	2.5
5	2.4	- 9.5	-23.1	-10.8	- 4.5	- 5.5	- 7.3	- 2.6	0.7	4.5	6.9	4.0
6	2.0	- 7.2	-19.7	-11.6	- 3.9	- 4.0	- 7.7	- 3.6	0.8	8.8	6.7	3.4
7	3.0	- 9.4	-20.2	-13.5	-11.5	- 5.8	- 7.8	- 3.1	3.5	12.4	6.8	1.4
8	1.4	- 9.5	-18.1	-13.6	-21.0	- 7.1	- 6.1	- 3.6	5.6	14.0	4.8	1.8
9	- 0.7	-11.6	-18.6	-12.0	-18.0	- 8.6	- 3.7	- 2.6	2.8	12.7	6.6	3.8
10	- 2.4	-11.0	-16.5	-10.9	-14.9	- 9.9	- 5.8	- 1.5	4.3	7.9	9.3	2.5
11	- 0.7	-11.4	-17.2	-10.5	-11.3	-10.1	- 4.8	- 1.5	9.9	6.6	6.8	1.0
12	0.6	- 9.3	-14.6	- 9.8	- 7.6	- 7.9	- 4.9	- 2.1	5.4	7.0	7.2	1.4
13	1.0	- 8.7	-10.5	- 8.4	- 6.0	-10.1	- 4.8	- 3.6	2.9	6.6	9.6	2.8
14	- 0.4	- 9.8	-10.9	- 7.8	- 7.2	-11.8	- 8.8	- 3.6	3.5	6.6	6.5	0.9
15	- 0.4	-14.1	- 7.0	- 4.2	- 8.1	- 8.0	- 6.6	- 1.9	4.6	5.8	7.8	0.5
16	0.1	-12.6	- 4.0	- 3.8	- 8.3	-10.9	- 5.7	- 1.5	2.5	6.8	6.7	0.6
17	- 0.8	- 7.3	- 5.6	- 4.8	- 9.3	-10.4	- 3.8	- 0.6	1.7	5.6	4.7	0.6
18	- 1.2	- 2.9	- 5.5	- 3.9	-10.4	- 7.9	- 4.1	- 2.4	2.6	8.4	3.7	0.7
19	- 1.3	- 2.5	- 5.0	- 5.0	- 9.7	- 9.9	- 4.6	- 2.9	3.1	8.9	4.6	0.6
20	- 3.7	- 2.6	- 6.5	- 5.0	-10.6	- 7.9	- 4.6	- 1.6	4.2	6.6	8.1	3.0
21	- 2.9	- 2.9	- 2.8	- 5.0	-11.7	- 5.5	- 5.6	- 1.1	2.8	6.6	10.5	4.4
22	- 2.4	- 3.7	- 3.0	- 9.8	-10.5	- 4.6	- 5.1	0.8	2.7	6.6	12.4	0.7
23	- 1.9	- 2.6	- 3.2	-11.2	-14.2	- 3.7	- 3.3	- 1.5	6.5	4.8	10.5	2.4
24	- 2.6	- 2.8	- 3.8	- 8.1	- 9.8	- 3.8	- 3.6	- 1.1	10.3	6.0	5.1	2.7
25	- 2.8	- 3.0	- 3.1	- 4.7	- 8.4	- 9.0	- 7.0	0.7	10.8	7.9	4.5	2.4
26	- 3.9	- 3.8	- 3.7	- 3.3	- 8.1	- 9.0	- 3.6	1.7	12.6	6.6	3.5	1.2
27	- 4.8	- 4.4	- 4.9	- 3.7	-10.3	- 8.1	- 2.5	1.5	5.6	5.4	3.0	1.0
28	- 8.4	- 7.2	- 7.1	- 5.7	-12.5	- 8.2	2.5	- 0.2	9.5	6.2	3.5	- 0.6
29	-16.0	-11.6	- 7.6	- 3.8	- 9.9	-10.3	5.4	2.2	12.7	6.8	3.8	- 1.7
30	-18.0	-14.9	- 5.0	- 6.0		-11.8	5.7	3.5	10.6	11.6	5.9	- 1.2
31	-20.0		- 5.6	- 6.9		- 7.8		5.7		15.1	3.7	
Monthly Average	-2.4	-8.6	-10.5	-7.5	-9.7	-7.8	-4.3	-0.9	5.3	7.4	7.1	1.7

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1977 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-76	Nov-76	Dec-76	Jan-77	Feb-77	Mar-77	Apr-77	May-77	June-77	July-77	Aug-77	Sept-77
1	1.2	--	--	--	--	- 6.1	- 5.3	- 2.9	6.7	11.3	6.6	8.1
2	- 0.4	--	--	--	--	- 5.7	- 1.9	- 1.4	7.9	9.3	6.1	9.1
3	- 1.6	--	--	--	--	- 5.7	- 2.4	1.4	4.9	6.3	8.9	9.1
4	- 0.3	--	--	--	--	- 6.0	- 3.5	2.2	0.9	5.1	8.5	9.6
5	0.7	--	--	--	--	-12.3	- 3.8	- 1.9	1.4	4.1	6.4	7.6
6	0.4	--	--	--	--	-11.4	- 4.0	- 0.3	2.4	4.8	5.7	4.5
7	- 1.6	--	--	--	--	-11.3	- 3.6	- 0.9	2.6	6.5	5.9	3.2
8	- 3.0	--	--	--	--	-11.2	- 3.6	- 1.3	3.6	8.9	6.6	2.6
9	- 3.6	--	--	--	--	-10.4	- 5.1	- 2.0	3.4	11.8	7.2	2.1
10	- 1.9	--	--	--	--	- 8.8	- 4.8	- 1.6	4.3	13.1	6.1	4.7
11	- 1.5	--	--	--	--	-10.5	- 8.6	- 3.4	4.1	15.1	6.3	5.6
12	- 4.2	--	--	--	--	- 9.2	-10.5	0.0	5.4	11.6	5.6	6.3
13	- 3.7	--	--	--	--	- 8.2	-12.4	1.5	6.2	6.6	8.8	5.4
14	- 1.5	--	--	--	--	- 8.2	- 7.2	0.6	5.6	6.2	7.2	4.6
15	- 1.1	--	--	--	--	- 6.4	- 8.0	0.2	4.2	5.1	8.0	3.9
16	- 1.0	--	--	--	- 1.0	- 4.6	- 7.8	- 0.4	3.9	10.6	10.0	3.7
17	--	--	--	--	--	- 8.5	- 4.5	- 0.9	3.8	12.6	8.6	4.6
18	--	--	--	--	--	- 8.5	- 5.8	- 0.7	2.4	11.6	9.8	3.6
19	--	--	--	--	--	- 8.1	- 5.2	- 0.2	4.4	7.6	10.6	4.1
20	--	--	--	--	--	- 7.2	- 1.7	- 1.7	4.4	6.6	15.6	2.8
21	--	--	--	--	--	- 7.4	0.1	- 0.2	3.3	5.6	15.6	3.6
22	--	--	--	--	--	-10.0	1.0	0.1	4.2	5.4	12.1	3.8
23	--	--	--	--	--	-13.2	2.7	- 0.1	5.0	5.9	10.6	4.6
24	--	--	--	--	- 6.3	-11.5	0.1	- 1.8	7.1	7.3	8.6	3.6
25	--	--	--	--	- 7.0	- 6.5	0.7	1.6	6.2	7.1	6.6	4.3
26	--	--	--	--	- 7.0	- 7.6	- 5.2	2.8	7.1	6.9	5.9	4.1
27	--	--	--	--	- 8.5	-10.6	- 5.6	2.7	6.8	6.3	5.9	3.1
28	--	--	--	--	- 7.1	- 7.5	- 4.4	2.6	8.3	12.1	9.0	2.1
29	--	--	--	--		- 4.4	- 6.3	0.6	6.4	12.1	10.1	- 3.4
30	--	--	--	--		- 6.0	- 3.5	2.1	8.6	7.1	9.8	- 0.4
31	--		--	--		- 7.8		4.6		5.9	5.8	
Monthly Average	N/A	N/A	N/A	N/A	N/A	-8.4	-4.3	0.0	4.9	8.3	8.3	4.4

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1978 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-77	Nov-77	Dec-77	Jan-78	Feb-78	Mar-78	Apr-78	May-78	June-78	July-78	Aug-78	Sept-78
1	0.9	--	--	--	--	- 5.2	- 3.8	--	--	--	--	--
2	0.7	--	--	--	--	- 5.8	- 5.4	--	--	--	--	--
3	1.1	--	--	--	--	- 8.6	- 5.3	--	--	--	--	--
4	1.1	--	--	--	--	- 8.9	- 4.7	--	--	--	--	--
5	1.6	--	--	--	--	- 9.4	- 4.6	--	--	--	--	--
6	0.8	--	--	--	--	- 9.4	- 5.9	--	--	--	--	--
7	0.6	--	--	--	--	- 5.5	- 4.0	--	--	--	--	--
8	- 0.4	--	--	--	--	- 7.2	- 3.1	--	--	--	--	--
9	- 0.1	--	--	--	--	- 5.8	- 4.2	--	--	--	--	--
10	0.4	--	--	--	--	- 4.8	- 4.7	--	--	--	--	--
11	0.4	--	--	--	--	- 6.1	- 5.2	--	--	--	--	--
12	0.4	--	--	--	--	- 5.9	- 3.3	--	--	--	--	--
13	- 0.2	--	--	--	--	- 5.9	- 0.7	--	--	--	--	--
14	- 0.6	--	--	--	--	- 6.6	- 2.8	--	--	--	--	--
15	- 1.6	--	--	--	--	- 4.5	- 3.1	--	--	--	--	--
16	- 1.9	--	--	--	--	- 4.5	- 3.0	--	--	--	--	--
17	- 5.1	--	--	--	--	- 6.7	- 3.6	--	--	--	--	--
18	- 6.5	--	--	--	--	- 4.8	- 1.5	--	--	--	--	--
19	- 7.5	--	--	--	--	- 4.2	- 0.1	--	--	--	--	--
20	- 2.9	--	--	--	--	- 4.7	- 0.6	--	--	--	--	--
21	- 1.7	--	--	--	--	- 4.2	- 0.3	--	--	--	--	--
22	- 2.6	--	--	--	--	- 7.2	--	--	--	--	--	--
23	- 3.6	--	--	--	--	- 8.7	--	--	--	--	--	--
24	--	--	--	--	--	- 4.0	--	--	--	--	--	--
25	--	--	--	--	--	- 2.8	--	--	--	--	--	--
26	--	--	--	--	--	- 5.5	--	--	--	--	--	--
27	--	--	--	--	--	- 6.0	--	--	--	--	--	--
28	--	--	--	--	--	- 7.3	--	--	--	--	--	--
29	--	--	--	--		- 4.7	--	--	--	--	--	--
30	--	--	--	--		- 5.5	--	--	--	--	--	1.5
31	--		--	--		- 4.2		--		--	--	
Monthly Average	-1.2	N/A	N/A	N/A	N/A	-6.0	N/A	N/A	N/A	N/A	N/A	N/A

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1979 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-78	Nov-78	Dec-78	Jan-79	Feb-79	Mar-79	Apr-79	May-79	June-79	July-79	Aug-79	Sept-79
1	1.1	- 4.0	- 3.8	- 4.2	- 4.4	- 8.9	- 3.1	- 0.5	3.2	9.4	9.3	9.0
2	0.2	- 5.0	- 4.1	- 4.3	- 7.6	- 6.3	- 3.8	- 0.6	1.5	13.9	12.2	9.2
3	- 0.7	- 6.0	- 8.2	- 5.3	-14.8	- 4.9	- 3.2	0.0	1.1	6.0	12.7	6.8
4	- 0.2	- 4.2	- 7.7	- 5.3	- 9.0	- 2.6	- 2.7	- 1.3	1.7	11.4	10.8	8.4
5	2.1	- 3.4	- 4.2	- 3.4	-16.0	- 2.3	- 3.2	- 0.7	3.3	6.0	8.2	7.8
6	2.0	- 4.7	- 2.9	0.0	-16.1	- 2.3	- 4.7	0.9	2.1	5.2	9.5	10.0
7	0.6	- 6.6	- 1.8	- 2.7	-20.1	- 4.6	- 2.9	- 0.2	1.8	6.6	7.2	9.5
8	1.1	- 5.8	- 2.4	- 4.6	-18.0	- 5.4	- 2.2	- 1.9	2.5	5.7	6.5	10.1
9	- 0.2	- 4.8	- 3.9	- 2.5	-14.3	- 3.0	- 2.8	- 1.4	9.0	6.5	7.5	9.6
10	1.2	- 3.8	- 7.5	- 3.5	-13.1	- 4.7	- 2.1	- 0.5	9.0	8.8	8.0	7.1
11	- 0.2	- 2.6	- 6.9	- 2.6	-12.4	- 4.4	- 3.5	- 0.3	6.7	7.7	8.5	8.1
12	- 1.0	- 3.2	- 5.5	- 3.8	-13.3	- 4.6	- 4.3	- 0.8	6.9	6.4	8.2	8.6
13	- 1.3	- 3.8	- 4.7	- 5.2	-14.7	- 3.8	- 6.7	0.2	6.0	7.8	8.1	8.0
14	- 3.2	- 4.8	-10.8	- 6.0	-17.5	- 3.2	- 4.7	- 0.4	7.8	6.0	8.6	7.2
15	- 2.8	- 8.5	-15.7	- 4.4	-13.1	- 3.3	- 3.6	- 1.0	7.4	5.0	7.9	5.5
16	- 1.3	- 9.7	-14.4	- 5.9	-10.5	- 4.1	- 4.7	- 2.1	2.8	6.2	8.2	5.4
17	- 0.4	- 7.4	- 8.6	- 8.0	- 8.1	- 3.7	- 4.2	- 1.8	4.0	9.0	7.7	5.9
18	- 0.8	- 5.0	- 7.0	- 8.3	- 9.7	- 4.8	- 3.6	- 0.3	7.0	8.2	8.0	4.3
19	- 1.3	- 4.2	- 8.5	- 8.3	- 8.0	- 3.9	- 1.5	- 0.3	5.5	9.5	7.8	6.0
20	- 1.9	- 3.3	-10.0	- 7.7	-10.0	- 3.0	- 0.6	- 0.5	4.1	10.2	8.8	4.6
21	- 4.3	- 3.4	-10.4	- 6.0	- 7.2	- 2.1	0.4	- 1.1	6.8	6.8	11.3	4.2
22	- 6.0	- 3.7	- 9.2	- 6.4	- 3.8	- 3.2	2.0	- 0.8	10.0	6.8	13.0	3.9
23	- 4.8	- 5.8	- 8.6	- 8.5	- 3.2	- 2.9	0.3	0.1	10.1	5.7	16.0	3.8
24	- 1.3	- 6.7	-12.2	- 7.3	- 9.2	- 0.9	0.0	0.1	4.5	6.7	16.2	2.7
25	- 2.1	- 3.5	-11.2	- 6.0	- 9.2	1.6	- 0.1	3.3	2.6	7.1	15.5	0.2
26	- 2.6	- 2.6	- 8.7	- 7.6	- 7.4	- 0.9	- 0.6	8.5	2.2	8.8	15.3	1.7
27	- 3.3	- 1.6	- 7.0	- 7.0	- 9.9	- 5.4	1.0	9.8	2.0	9.3	12.0	0.4
28	- 4.0	- 2.6	- 5.0	- 5.9	-10.3	- 6.2	3.0	7.4	1.5	8.6	10.7	1.4
29	- 2.7	- 2.3	- 4.5	- 4.3		- 6.8	0.9	1.2	5.1	8.5	6.1	2.7
30	- 4.3	- 5.0	- 4.4	- 5.0		- 5.9	3.9	2.0	7.3	7.6	5.9	2.7
31	- 4.1		- 5.4	- 2.0		- 5.2		3.1		8.3	5.0	
Monthly Average	-1.5	-4.6	-7.3	-5.2	-11.1	-3.9	-1.9	0.6	4.9	7.7	9.7	5.8

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1980 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-79	Nov-79	Dec-79	Jan-80	Feb-80	Mar-80	Apr-80	May-80	June-80	July-80	Aug-80	Sept-80
1	3.9	- 1.4	- 3.1	-11.9	- 4.4	- 5.8	- 5.0	- 2.4	3.2	5.4	8.0	6.4
2	1.8	- 1.2	- 3.9	-12.6	- 4.2	- 5.2	- 3.8	- 2.2	4.0	6.4	5.6	0.2
3	1.4	- 0.5	- 5.2	-12.0	- 7.6	- 4.2	- 3.8	- 3.2	7.8	4.4	7.8	- 1.0
4	1.6	0.8	- 5.9	- 9.2	- 6.2	- 5.0	- 3.6	0.6	8.2	7.8	10.0	4.5
5	2.0	0.1	- 9.3	- 6.9	- 3.8	- 5.4	- 2.8	- 1.6	9.6	7.2	11.0	4.8
6	1.4	- 0.1	-11.5	- 4.3	- 4.8	- 3.6	- 1.6	- 1.8	9.4	6.0	9.6	4.4
7	1.7	0.7	-11.2	- 2.1	-10.2	- 5.0	- 3.2	- 2.0	5.2	6.0	6.0	4.1
8	2.1	0.8	-12.8	- 0.2	- 6.8	- 5.8	- 4.0	- 1.0	5.6	5.0	6.4	4.5
9	4.1	1.1	-12.0	- 3.7	- 5.4	- 7.2	- 1.6	- 1.4	6.8	5.4	6.6	3.5
10	3.7	0.3	-13.2	- 6.6	- 2.8	- 8.2	- 3.4	- 2.2	3.6	5.0	7.0	4.5
11	2.3	0.9	-16.7	-20.6	- 1.6	-10.8	- 2.6	- 1.6	1.6	5.6	6.6	3.9
12	0.4	- 0.1	-19.4	-22.2	- 0.6	-11.2	- 3.2	- 1.2	1.6	6.4	6.0	3.6
13	0.0	- 2.0	-14.2	-15.2	- 4.4	-13.6	- 5.0	- 1.2	2.0	8.8	5.4	4.2
14	- 0.1	- 2.5	-11.7	-14.6	2.6	-15.8	- 4.2	- 1.6	3.8	10.0	4.6	5.2
15	1.4	- 1.9	-10.1	-14.0	0.4	-11.8	- 5.6	- 1.6	3.6	6.8	4.2	7.4
16	0.6	- 6.4	- 2.9	-15.2	- 2.2	-11.6	- 4.8	- 1.8	5.4	7.2	4.2	8.3
17	0.3	- 8.4	- 8.4	- 6.0	- 5.6	- 9.8	- 4.6	- 2.8	1.8	6.4	6.0	6.3
18	1.6	- 7.7	-18.0	- 4.6	- 8.4	- 8.4	- 3.6	- 2.6	1.6	8.0	5.0	6.1
19	- 0.3	- 3.5	-14.4	- 5.6	-11.4	- 5.8	- 1.8	- 1.0	2.6	11.6	6.6	6.1
20	- 1.2	- 4.9	-10.3	- 5.2	- 9.4	- 6.6	- 3.6	- 0.6	1.2	13.4	5.0	4.1
21	- 1.8	- 2.6	-11.3	- 3.6	- 7.4	- 4.2	- 4.0	- 0.8	2.6	10.0	1.4	2.3
22	- 0.6	- 3.3	-10.7	- 6.8	- 5.8	- 5.6	- 4.2	0.4	5.0	12.0	4.2	2.7
23	- 0.2	- 5.4	-10.1	-13.6	- 4.6	- 6.8	- 4.8	- 1.4	5.8	11.6	8.8	3.4
24	- 0.5	- 6.9	- 8.4	- 8.6	- 7.2	- 5.6	- 3.4	- 1.4	3.8	9.6	8.8	2.9
25	- 1.7	- 5.9	- 5.9	- 7.8	- 3.8	- 5.4	- 3.0	0.2	3.6	9.2	9.8	3.6
26	1.1	- 6.8	- 5.8	- 9.0	- 3.4	- 4.4	- 2.8	- 0.6	6.0	8.0	9.4	4.7
27	1.0	- 3.8	- 6.0	- 7.2	- 3.2	- 5.4	- 3.0	0.0	8.2	6.6	5.6	3.4
28	- 0.6	- 1.1	-10.9	- 5.4	- 1.8	- 4.8	- 1.8	- 0.6	3.8	7.2	4.4	3.2
29	- 0.8	- 0.9	-17.3	-11.0	- 4.8	- 6.0	- 3.0	- 1.4	3.2	5.2	5.0	4.3
30	- 0.1	- 2.2	-17.9	-10.0		- 4.8	- 2.2	- 0.6	3.0	6.8	4.8	3.7
31	- 2.1		-15.7	- 3.2		- 3.6		0.6		7.6	5.2	
Monthly Average	0.7	-2.5	-10.8	-9.0	-4.8	-7.0	-3.5	-1.3	4.5	7.6	6.4	4.2

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1981 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-80	Nov-80	Dec-80	Jan-81	Feb-81	Mar-81	Apr-81	May-81	June-81	July-81	Aug-81	Sept-81
1	2.9	- 0.4	- 5.4	- 0.9	- 1.8	- 3.5	- 3.5	0.6	3.0	3.2	6.2	8.4
2	1.7	- 1.4	0.9	- 1.0	- 2.0	- 5.1	- 4.6	1.0	2.2	4.0	6.6	6.1
3	0.6	0.6	- 3.6	0.5	- 3.0	- 6.1	- 3.8	0.3	1.7	5.0	8.6	5.1
4	1.1	1.7	- 6.1	- 1.3	- 2.0	- 6.9	- 5.2	0.5	2.0	5.5	9.9	5.7
5	2.4	- 0.1	- 5.0	- 1.7	- 1.5	- 4.0	- 4.0	2.5	2.4	8.5	7.6	5.6
6	3.0	- 1.4	- 5.7	- 0.6	- 2.0	- 5.1	- 3.2	10.1	2.9	6.2	6.8	4.6
7	3.0	- 2.6	- 4.5	- 0.7	- 0.9	- 3.0	- 3.8	12.7	3.2	6.2	8.6	4.7
8	- 1.7	- 5.8	- 5.3	- 1.1	- 0.8	- 2.4	- 1.8	10.6	1.7	5.0	6.6	5.5
9	- 4.6	- 4.4	- 5.6	- 0.5	- 3.0	- 1.7	- 2.2	7.0	2.3	4.9	6.8	6.6
10	- 3.6	- 2.7	- 9.2	- 1.5	- 5.0	- 2.5	- 1.6	2.0	4.0	6.4	5.6	4.9
11	- 4.7	- 1.9	-15.9	- 0.9	- 5.8	- 2.8	0.5	2.0	6.4	6.0	5.0	4.5
12	- 2.5	- 1.4	-17.2	- 1.6	- 6.9	- 2.9	- 1.4	2.0	7.3	5.4	5.6	2.4
13	- 2.3	- 2.9	-18.2	- 0.6	- 8.2	- 2.7	- 4.0	3.0	7.3	7.3	5.6	2.5
14	0.9	- 1.6	-18.7	- 0.1	-13.2	- 3.0	- 4.2	3.8	6.6	5.8	4.1	3.4
15	0.5	- 1.4	-19.8	0.4	-14.0	- 2.5	- 4.0	5.4	4.8	6.8	4.6	3.7
16	- 0.8	- 2.3	-20.7	- 0.4	-11.8	- 2.4	- 3.0	6.0	9.4	7.6	4.6	2.5
17	- 0.6	- 2.5	-16.7	- 0.2	- 9.1	- 2.0	- 4.0	3.5	10.2	8.0	3.8	5.0
18	1.3	- 1.5	-11.8	0.1	- 6.6	- 1.5	- 3.5	3.3	8.2	7.3	4.8	4.2
19	0.5	- 2.3	-10.7	- 3.4	- 4.6	- 1.2	- 1.8	1.5	9.9	6.1	5.6	3.8
20	0.0	- 3.5	- 8.6	- 4.8	- 4.0	- 1.7	- 1.0	1.0	9.4	6.6	4.6	2.1
21	0.2	- 3.4	- 4.6	0.3	- 8.6	- 3.0	- 1.0	1.2	7.6	8.3	3.6	1.7
22	0.4	- 1.6	- 4.4	- 0.5	- 8.1	- 2.5	0.0	1.7	7.8	9.4	4.6	2.2
23	0.3	- 1.4	- 4.7	- 2.5	- 6.9	- 2.0	3.0	2.8	10.2	7.8	6.1	2.4
24	0.9	- 1.9	- 2.5	- 2.5	- 5.3	- 1.1	1.0	4.6	7.2	7.6	8.3	0.5
25	- 1.3	- 2.1	- 7.0	- 2.3	- 1.8	0.6	- 0.5	7.7	6.4	6.8	13.4	- 1.5
26	- 1.5	- 2.4	- 8.6	- 4.2	- 2.8	- 2.0	- 0.5	8.8	5.0	7.6	12.8	- 1.1
27	- 0.3	- 3.9	-10.6	- 6.6	- 3.0	- 2.0	1.0	4.4	4.7	10.4	9.2	- 2.2
28	- 1.4	- 5.9	- 6.3	- 5.3	- 3.8	- 2.0	3.0	4.2	3.6	7.9	9.8	- 2.7
29	- 1.5	- 4.9	- 2.6	- 4.0		- 2.5	4.0	7.1	5.2	9.8	7.0	- 1.1
30	- 3.9	- 3.1	- 3.3	- 2.8		- 1.1	5.2	6.1	6.2	8.8	5.6	- 0.5
31	- 5.3		- 0.6	- 2.0		- 3.3		3.0		7.6	6.3	
Monthly Average	-0.5	-2.3	-8.5	-1.7	-5.2	-2.7	-1.5	4.2	5.6	6.9	6.7	3.0

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1982 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-81	Nov-81	Dec-81	Jan-82	Feb-82	Mar-82	Apr-82	May-82	June-82	July-82	Aug-82	Sept-82
1	0.2	- 6.0	- 5.3	-11.4	- 3.0	- 7.6	-12.7	- 4.1	8.6	1.7	9.7	4.7
2	- 0.2	- 9.2	- 9.9	- 9.3	- 0.3	- 8.7	-12.8	- 2.6	6.6	0.7	9.5	5.8
3	- 0.3	- 9.5	- 9.5	- 8.4	1.5	- 8.4	-10.2	- 2.6	4.9	2.0	10.6	2.3
4	- 2.7	- 9.5	-10.3	- 8.5	0.9	- 8.3	- 4.1	- 5.4	3.4	2.4	9.5	3.0
5	0.4	-12.2	-12.6	-17.3	4.8	- 6.0	- 3.1	- 2.6	1.1	3.4	8.2	4.0
6	- 2.1	-11.2	- 8.5	-17.0	5.3	- 4.6	1.5	0.4	1.1	6.3	6.9	2.1
7	- 1.5	- 3.3	- 6.2	-13.8	6.4	- 5.7	- 1.1	- 1.3	2.4	12.1	3.7	3.0
8	- 3.5	- 1.9	- 6.6	-13.4	2.4	- 6.6	- 2.9	- 0.9	3.1	7.4	4.7	3.6
9	- 1.8	- 0.9	- 7.0	- 8.3	- 4.4	- 6.8	- 5.6	- 1.3	4.2	5.1	4.7	3.3
10	- 1.3	0.0	- 9.4	- 2.7	- 7.9	- 7.7	- 6.7	- 1.0	1.6	6.4	3.6	3.0
11	0.0	- 0.5	- 6.1	- 3.3	-11.6	- 8.6	- 5.6	- 1.9	0.1	5.4	3.3	3.8
12	2.7	- 1.9	- 2.4	- 2.6	-11.1	-10.6	- 7.5	- 2.0	0.5	6.6	7.7	1.6
13	3.4	- 2.0	- 3.1	- 4.9	- 9.0	-12.1	- 8.6	- 2.4	1.8	9.2	11.5	3.3
14	1.4	- 2.1	- 3.3	- 7.6	-17.8	- 9.7	- 6.6	- 1.4	2.2	8.7	7.9	4.6
15	0.5	- 4.4	- 3.1	- 6.7	-26.3	- 4.9	- 6.5	- 1.6	2.7	3.4	4.1	6.3
16	0.4	- 4.3	- 2.1	- 5.6	-21.9	- 5.0	- 4.3	- 0.3	2.7	4.5	7.0	3.8
17	- 0.5	- 5.6	- 1.8	- 9.6	-20.3	- 4.1	- 5.1	0.0	3.4	4.9	6.5	2.2
18	- 1.6	- 4.7	- 2.4	- 8.8	-20.4	- 4.3	- 7.4	- 1.6	3.4	6.2	7.8	4.9
19	- 1.7	- 7.5	- 4.9	- 7.4	-21.0	- 3.6	- 4.5	- 1.4	3.4	11.4	8.8	3.8
20	- 0.5	- 5.5	- 6.6	- 8.2	-20.3	- 3.2	- 4.0	- 3.0	2.7	13.4	9.7	2.7
21	1.7	- 4.7	- 8.3	-10.5	-19.8	- 3.6	- 5.2	- 0.5	2.3	7.6	7.1	3.0
22	1.5	- 4.0	- 5.2	-13.7	-16.3	- 2.4	- 4.1	1.7	3.0	6.2	6.8	1.3
23	1.8	- 8.2	- 3.8	-14.4	-13.7	- 5.8	- 5.8	- 1.0	6.9	5.1	7.6	0.6
24	0.8	- 4.5	- 7.2	-13.7	-13.9	- 4.7	- 4.4	1.1	11.6	5.6	6.6	2.4
25	- 1.4	- 4.5	- 7.8	-10.6	-12.6	- 8.0	- 4.1	2.4	13.3	5.6	5.2	2.2
26	- 4.3	- 2.8	- 9.3	-12.7	- 9.3	- 9.6	- 3.7	- 0.5	13.6	9.7	7.4	1.4
27	- 2.2	- 3.1	-10.1	-10.5	-10.3	- 6.0	- 3.1	- 0.8	7.5	11.4	7.7	3.3
28	- 2.0	- 5.0	- 9.3	- 5.8	- 9.5	- 7.9	- 4.0	0.2	2.7	10.9	6.1	1.6
29	- 4.1	- 6.9	-11.2	- 5.2		- 7.9	- 4.5	2.3	1.6	5.2	5.2	0.8
30	- 6.4	- 3.5	-11.3	- 5.1		-10.0	- 4.8	5.4	2.8	7.2	3.8	0.4
31	- 7.3		-11.5	- 5.0		-11.7		6.9		9.4	3.3	
Monthly Average	-1.0	-5.0	-7.0	-9.1	-10.0	-6.9	-5.4	-0.6	4.2	6.6	6.8	3.0

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1983 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-82	Nov-82	Dec-82	Jan-83	Feb-83	Mar-83	Apr-83	May-83	June-83	July-83	Aug-83	Sept-83
1	0.3	- 3.9	-15.8	- 2.1	- 3.2	- 7.5	- 2.7	2.8	1.3	7.0	8.4	5.4
2	- 0.7	- 4.8	-10.9	- 2.3	- 3.7	- 7.4	- 0.9	- 2.3	2.4	7.7	11.6	6.5
3	- 2.0	- 7.0	- 9.5	- 3.5	- 4.3	- 8.4	- 3.8	- 2.0	0.9	9.8	14.9	4.5
4	- 3.1	- 5.5	- 8.4	- 3.8	- 3.1	- 6.4	- 4.4	- 2.4	2.4	9.3	8.6	3.9
5	- 3.5	- 7.4	- 4.9	- 7.9	- 4.5	- 3.2	- 4.0	- 2.5	5.6	9.1	6.0	3.3
6	- 5.2	- 8.9	- 3.9	-15.0	- 4.8	- 4.0	- 4.7	- 1.4	8.1	7.3	7.1	4.3
7	- 3.2	- 7.3	- 3.2	-14.3	- 7.0	0.1	- 4.6	2.3	6.9	6.5	6.8	6.1
8	- 4.2	- 5.8	- 3.4	-18.1	- 9.5	0.0	- 7.2	3.5	7.4	4.5	8.2	3.6
9	- 2.0	- 6.1	- 6.3	-17.6	-10.1	- 2.8	- 5.5	0.4	5.4	4.4	6.9	4.5
10	- 5.7	- 5.4	- 3.8	-17.8	-12.7	- 4.0	- 6.3	- 0.8	3.3	5.7	7.6	6.0
11	- 3.5	- 3.8	- 2.6	-18.3	-12.5	- 3.0	- 7.1	0.3	2.4	4.1	8.3	6.5
12	0.0	- 3.0	- 3.2	-16.8	-11.8	- 2.5	- 2.3	0.8	1.8	5.4	6.9	3.6
13	- 3.5	- 3.7	- 4.0	-11.9	-10.2	- 0.9	- 2.0	1.7	3.9	8.5	4.3	2.9
14	- 3.9	- 4.6	- 3.4	- 9.5	- 9.2	- 1.9	- 2.4	1.8	3.2	10.8	4.4	0.3
15	- 3.2	- 6.3	- 2.6	- 4.8	- 4.5	- 4.1	- 4.6	0.3	4.6	12.6	4.4	1.3
16	- 2.9	- 6.9	- 3.0	- 6.5	- 3.7	- 3.0	- 3.4	- 0.8	5.3	13.5	6.7	2.5
17	- 2.0	-11.1	- 4.1	- 7.5	- 2.0	- 0.8	- 2.9	0.5	9.3	10.2	6.4	4.0
18	- 0.9	-11.5	- 5.6	- 3.9	- 5.5	- 2.3	- 5.1	- 0.7	11.4	8.4	8.4	1.5
19	- 2.8	- 8.7	- 5.3	- 7.9	- 4.7	- 4.7	- 4.5	1.3	7.0	7.7	10.7	2.0
20	- 8.2	- 7.7	- 5.0	- 6.7	- 4.4	- 5.0	- 4.1	6.2	5.5	7.5	6.9	5.3
21	-11.6	- 5.5	- 5.5	- 5.9	- 3.4	- 5.6	- 3.5	1.4	6.2	8.1	4.5	4.0
22	- 9.2	- 3.5	- 7.6	- 2.5	- 2.6	- 4.1	- 0.8	0.6	8.6	9.1	5.6	3.5
23	- 2.6	- 2.2	- 6.6	- 2.0	- 2.0	- 4.3	- 1.1	- 1.4	6.4	6.0	5.9	- 2.0
24	- 6.5	- 1.5	- 5.5	- 6.5	- 5.0	- 3.8	3.0	- 0.9	8.1	7.7	5.5	- 7.7
25	-10.1	- 1.7	- 6.1	- 2.7	- 4.7	- 4.8	4.7	1.3	8.5	8.2	2.8	- 6.2
26	-14.0	- 1.9	- 4.2	- 2.1	- 4.0	- 4.1	3.5	0.1	5.1	9.1	3.9	- 3.4
27	-13.4	- 2.7	- 2.8	- 2.5	- 3.2	- 3.8	2.4	0.3	5.8	11.8	8.6	- 2.8
28	- 4.7	- 4.3	- 2.1	- 3.5	- 3.7	- 4.1	1.9	3.0	5.9	10.6	11.0	0.9
29	- 7.5	- 4.5	- 3.1	- 3.6		- 3.2	1.4	4.4	5.9	8.1	7.4	3.3
30	-10.1	- 8.3	- 5.3	- 3.7		- 1.8	1.9	5.6	7.4	7.7	6.8	2.7
31	- 7.6		- 2.6	- 2.9		- 2.2		1.4		10.1	6.5	
Monthly Average	-5.1	-5.5	-5.2	-7.6	-5.7	-3.7	-2.3	0.8	5.5	8.3	7.2	2.3

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1984 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-84	Nov-84	Dec-84	Jan-84	Feb-84	Mar-84	Apr-84	May-84	June-84	July-84	Aug-84	Sept-84
1	0.4	- 2.6	- 3.0	- 2.3	- 6.7	- 3.7	- 1.7	- 1.4	6.2	5.0	8.3	4.9
2	1.6	- 1.0	- 3.6	- 1.9	- 7.0	- 4.7	- 2.4	- 2.6	8.3	5.2	9.7	8.2
3	0.3	- 1.0	- 6.3	- 3.0	- 6.0	- 4.3	- 3.6	- 3.4	8.7	7.0	12.3	8.1
4	- 0.6	- 0.8	- 5.8	-11.4	- 6.5	- 2.0	- 2.2	- 1.5	9.0	13.2	13.4	6.5
5	1.9	- 3.1	- 3.2	-11.9	-10.1	- 1.4	- 2.5	- 0.7	7.8	15.8	9.7	7.5
6	- 2.5	- 2.2	- 4.2	- 7.3	- 9.9	- 0.3	- 1.9	- 1.8	2.3	15.2	11.8	4.4
7	- 4.1	- 3.0	- 5.0	- 6.3	-14.8	- 0.1	- 2.5	1.7	3.0	13.6	10.6	4.2
8	- 4.2	- 1.8	- 4.5	- 3.0	-15.0	0.2	- 4.8	3.9	5.3	7.1	10.5	4.6
9	- 2.8	- 1.3	- 7.3	- 2.2	-16.5	- 0.2	- 2.0	5.6	4.6	6.4	10.7	6.5
10	1.4	- 2.6	- 6.2	- 2.8	-11.5	- 0.3	- 3.4	4.1	5.9	5.8	10.2	9.2
11	1.1	- 0.8	- 2.6	- 4.5	- 5.1	- 0.1	0.1	2.6	7.3	5.2	8.6	7.3
12	0.0	- 3.6	- 5.8	- 2.3	- 4.2	- 0.1	0.7	1.0	6.9	5.7	11.8	4.8
13	- 1.5	- 3.5	- 8.1	- 2.1	- 4.4	- 3.1	- 2.9	1.9	3.0	4.9	12.1	3.5
14	- 3.0	- 3.2	-11.7	- 3.0	-12.7	- 1.8	- 0.4	1.3	4.3	5.4	14.2	3.4
15	- 2.1	- 4.0	- 9.4	- 2.6	- 5.7	- 3.3	- 2.9	0.5	2.3	6.5	14.9	4.0
16	0.2	- 5.8	- 8.1	- 2.1	- 5.8	- 1.2	- 5.3	1.0	1.8	6.7	9.9	4.1
17	- 0.2	- 6.3	- 4.8	- 4.8	- 5.4	- 3.5	- 3.0	0.5	6.2	5.0	7.8	3.9
18	- 0.4	- 7.2	- 2.7	- 6.3	- 7.3	- 3.4	- 3.3	0.5	8.4	5.3	7.0	3.7
19	- 0.3	- 7.7	- 5.2	- 8.8	- 9.3	- 2.3	- 3.0	3.4	10.1	5.2	7.6	2.2
20	- 1.1	- 5.0	- 4.4	- 8.2	-12.6	- 4.4	- 2.3	4.2	9.4	5.6	6.3	1.2
21	- 1.3	- 3.7	- 4.2	-10.5	- 8.2	- 4.6	- 3.9	1.0	9.0	6.4	6.1	6.3
22	- 2.7	- 2.9	- 2.8	-18.6	- 6.4	- 4.4	- 6.2	1.6	10.4	7.8	6.5	5.7
23	- 4.7	- 3.7	5.9	-20.5	- 6.9	- 3.4	- 4.8	3.2	6.0	7.4	7.6	3.7
24	- 4.1	- 7.1	5.5	-19.6	- 7.3	- 4.2	- 3.0	1.5	4.6	7.4	6.6	2.4
25	- 7.6	- 4.8	3.5	-15.2	- 5.1	- 2.3	- 2.9	1.1	4.9	7.0	6.3	2.2
26	- 7.0	- 3.5	2.8	- 8.1	- 3.4	- 1.9	- 3.5	0.0	5.0	7.6	3.5	3.3
27	- 4.2	- 2.8	- 2.5	- 7.7	- 4.1	- 2.7	- 1.3	- 0.5	6.0	8.8	3.7	3.5
28	- 3.3	- 1.5	- 7.5	- 8.3	- 4.3	- 3.0	0.4	3.6	8.5	8.0	3.4	3.2
29	- 2.7	- 1.2	- 8.4	- 4.0	- 4.9	- 3.6	0.0	4.4	4.9	7.2	3.7	4.0
30	- 6.1	- 2.2	- 9.3	- 5.2		- 3.2	- 0.9	0.1	4.5	7.9	3.9	2.6
31	- 5.7		- 6.2	- 7.3		- 2.4		1.6		8.0	4.1	
Monthly Average	-2.1	-3.3	-4.4	-7.2	-7.8	-2.4	-2.5	1.2	6.2	7.5	8.5	4.6

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1985 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-84	Nov-84	Dec-84	Jan-85	Feb-85	Mar-85	Apr-85	May-85	June-85	July-85	Aug-85	Sept-85
1	2.9	- 4.4	- 2.4	- 1.7	- 1.0	- 9.0	-18.9	- 4.0	- 1.4	6.9	7.6	6.8
2	1.6	- 1.9	- 3.1	- 3.1	- 1.6	- 9.5	-13.3	- 1.4	1.0	4.8	7.5	7.2
3	1.1	0.4	- 1.8	- 3.4	- 4.1	- 9.6	- 9.1	- 1.8	2.9	4.7	6.5	4.7
4	0.9	- 4.8	- 1.9	- 4.6	- 4.4	- 7.0	-11.3	- 0.4	1.0	6.7	8.1	6.4
5	0.3	- 2.5	- 1.8	- 6.0	- 7.7	- 5.7	- 9.9	0.1	0.0	10.3	8.4	8.6
6	2.0	- 3.2	- 2.7	- 4.0	- 9.4	- 6.6	- 6.2	0.8	0.4	12.6	7.8	9.6
7	2.0	- 6.0	- 4.7	- 2.2	- 9.8	- 8.5	- 4.2	- 1.6	- 0.4	4.8	5.1	9.8
8	1.2	- 8.0	- 7.7	- 1.6	-12.8	- 5.1	- 6.4	- 4.1	0.4	6.4	4.3	5.4
9	0.5	- 5.7	- 9.9	- 2.3	-17.4	- 5.1	-11.8	- 5.1	0.5	8.4	2.9	4.4
10	1.4	- 5.7	- 9.0	- 2.1	-13.8	- 5.5	-14.5	- 4.5	1.0	11.3	6.0	2.6
11	0.2	- 9.5	- 2.6	- 2.9	-15.9	- 6.1	-13.0	- 5.1	1.1	7.6	4.3	2.7
12	- 0.8	-13.3	-10.0	- 3.1	-17.2	- 7.2	-12.9	- 3.2	1.8	6.0	4.3	3.7
13	- 0.6	-10.9	-10.0	- 3.1	-13.0	- 7.4	-13.0	- 2.9	1.2	6.0	6.2	4.9
14	- 1.2	- 7.1	-10.9	- 4.3	-16.9	- 8.8	- 9.6	- 4.6	1.2	6.3	6.8	5.3
15	- 1.3	- 2.7	- 7.1	- 4.5	-16.5	- 5.5	- 4.6	- 2.3	1.2	5.3	6.4	5.3
16	1.0	- 2.8	1.2	- 2.4	-15.1	- 6.3	- 5.8	- 1.2	1.1	8.4	6.2	3.8
17	1.5	- 3.7	- 1.6	- 2.4	-15.0	- 7.1	- 3.8	- 2.4	- 0.2	10.5	8.3	1.9
18	1.0	- 3.5	- 3.4	- 3.0	-15.6	- 6.3	- 4.9	- 2.8	1.5	11.0	6.4	- 0.1
19	- 1.5	- 2.7	- 2.7	- 2.1	-14.4	- 7.1	- 7.0	- 0.7	1.0	8.0	3.3	1.5
20	- 2.6	- 2.5	- 4.0	- 3.4	-12.0	- 5.6	- 6.1	- 0.4	0.1	6.8	2.7	0.5
21	0.0	- 3.2	- 3.9	- 3.0	-13.4	- 5.8	- 2.7	4.1	2.4	4.4	2.2	1.6
22	1.0	- 6.0	- 3.3	- 3.1	-13.4	- 5.8	- 3.3	5.9	7.0	3.2	4.7	0.1
23	- 4.0	- 8.1	- 5.0	- 2.8	- 8.6	- 5.3	- 3.1	8.5	3.8	4.3	5.6	3.1
24	- 4.2	-10.8	- 6.4	- 5.1	- 7.9	- 5.4	- 4.1	5.4	0.4	6.0	6.1	2.0
25	- 3.1	-12.0	- 6.4	- 5.4	- 4.7	- 7.1	- 5.5	3.9	2.0	9.2	3.4	1.0
26	- 2.3	-10.5	- 6.7	- 2.7	- 4.2	- 6.6	- 4.3	6.4	4.5	7.1	7.3	0.4
27	- 1.6	- 7.2	- 9.2	- 3.1	- 4.2	- 8.6	- 1.9	6.4	10.8	7.2	10.8	1.8
28	- 3.1	- 6.5	- 9.2	- 4.3	-10.4	- 7.7	- 2.1	0.9	9.5	7.5	13.1	1.1
29	- 7.1	- 5.1	- 7.3	- 3.2		- 6.9	- 4.8	- 0.8	13.8	7.2	5.8	1.6
30	- 6.1	- 4.1	- 5.0	- 3.1		- 8.6	- 4.2	- 1.7	14.7	8.8	6.4	1.6
31	- 4.1		- 2.2	- 3.0		-14.4		- 2.3		5.8	5.9	
Monthly Average	-0.8	-5.8	-5.2	-3.3	-10.7	-7.1	-7.4	-0.4	2.8	7.2	6.1	3.6

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1986 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-85	Nov-85	Dec-85	Jan-86	Feb-86	Mar-86	Apr-86	May-86	June-86	July-86	Aug-86	Sept-86
1	0.2	-18.2	- 6.0	- 8.6	- 2.4	-15.3	-10.9	0.1	- 0.1	--	--	3.7
2	1.6	-17.5	- 8.2	- 8.2	- 3.8	-11.7	- 7.5	1.4	0.1	--	--	2.6
3	- 1.5	-12.1	- 9.2	- 4.2	- 6.3	-12.7	- 6.4	- 3.0	0.1	--	--	3.2
4	0.0	- 8.9	- 7.2	- 3.6	- 4.7	-11.6	- 8.4	- 1.4	0.5	--	--	5.8
5	1.6	- 8.4	- 7.8	- 2.7	- 4.8	-11.5	- 8.7	- 0.5	2.0	--	--	7.3
6	- 1.6	- 6.7	- 8.0	- 5.1	- 3.3	- 8.4	-16.8	- 1.6	2.4	--	--	5.8
7	- 0.6	- 8.6	- 6.0	- 4.3	- 3.6	- 6.1	-19.2	- 1.9	1.0	--	--	3.9
8	- 0.3	- 7.4	- 2.6	- 6.6	- 3.3	-12.3	-15.8	- 2.9	0.1	--	--	2.8
9	0.2	- 8.4	- 3.4	- 5.4	- 4.1	- 6.8	-11.4	- 3.1	1.2	--	--	3.1
10	- 0.2	- 5.3	- 1.0	- 6.0	- 1.5	- 4.8	- 9.5	- 2.7	0.7	--	--	6.3
11	- 1.3	- 5.1	- 2.6	- 4.8	4.7	- 2.0	- 7.4	- 1.4	1.1	--	--	7.8
12	- 0.7	- 9.0	- 2.6	- 2.5	7.1	- 2.5	- 7.1	2.0	3.7	--	--	7.9
13	- 0.5	-11.9	- 1.8	- 2.0	4.3	- 1.6	- 5.3	0.6	8.8	--	--	8.6
14	- 1.4	-11.7	- 2.3	- 2.8	5.7	- 2.1	- 4.8	- 2.7	9.9	--	--	12.1
15	- 2.1	-13.1	- 3.8	- 3.7	2.8	- 4.1	- 5.2	- 3.4	--	--	--	9.4
16	- 2.9	- 6.2	- 3.1	- 4.3	3.9	- 5.8	- 4.1	- 2.0	--	--	--	8.0
17	- 3.3	- 4.5	- 4.3	- 6.1	- 5.4	- 4.2	- 4.3	- 0.4	--	--	--	4.5
18	- 6.0	- 2.1	- 2.7	- 5.3	-13.5	- 5.0	- 5.3	- 2.0	--	--	--	4.5
19	- 8.7	- 2.5	- 1.4	- 6.3	-14.2	- 5.3	- 3.0	1.2	--	--	--	2.2
20	- 7.8	- 0.8	- 1.3	- 8.2	-12.0	- 4.9	- 3.0	2.6	--	--	--	4.3
21	- 6.5	- 4.8	- 2.1	- 6.6	- 8.8	- 3.5	- 3.8	3.4	--	--	6.2	2.2
22	- 8.6	- 4.3	- 1.9	- 2.8	-11.2	- 5.1	- 4.9	1.2	--	--	6.1	1.1
23	-10.8	6.3	- 0.1	- 2.1	-13.7	- 3.4	- 4.8	3.3	--	--	3.4	- 0.1
24	-13.2	2.4	- 1.7	- 3.7	-11.8	- 0.9	- 4.4	7.6	--	--	4.1	- 0.2
25	-15.3	- 5.7	- 3.2	- 5.0	-13.1	- 2.8	- 4.7	3.3	--	--	5.6	- 2.2
26	-11.6	- 8.0	0.8	- 4.3	-18.8	- 7.9	- 4.3	4.3	--	--	6.4	- 1.3
27	- 8.9	- 9.8	- 2.3	- 5.8	-21.3	- 9.3	- 1.3	3.8	--	--	5.1	0.4
28	- 7.6	- 7.6	- 3.4	- 6.3	-18.4	-10.8	1.8	4.5	--	--	4.9	2.0
29	- 9.4	- 8.4	- 3.2	- 3.6		-15.5	1.5	6.6	--	--	4.3	2.5
30	-11.9	- 6.4	- 3.6	- 3.7		-16.1	- 0.2	1.8	--	--	2.5	2.3
31	-15.4		- 5.4	- 4.5		-11.5		1.1		--	3.2	
Monthly Average	-5.0	-7.2	-3.6	-4.8	-6.1	-7.3	-6.3	0.6	N/A	N/A	N/A	4.0

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1987 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-86	Nov-86	Dec-86	Jan-87	Feb-87	Mar-87	Apr-87	May-87	June-87	July-87	Aug-87	Sept-87
1	2.7	0.2	- 7.2	- 2.6	-2	-13.2	- 2.9	- 0.1	3.2	3.4	7.3	4.1
2	2.2	1.9	- 6.6	- 4.2	-3	-13.0	- 1.0	- 1.0	2.5	4.9	7.9	4.1
3	2.4	- 0.9	- 7.1	- 7.2	-3	-14.5	- 1.5	0.3	2.7	4.6	7.5	6.1
4	- 0.5	- 1.8	- 4.9	- 4.8	-1	-16.3	- 3.0	2.2	4.1	6.0	6.7	5.8
5	- 1.3	- 2.4	- 5.0	- 4.3	-5	-16.7	- 4.6	- 0.2	6.1	5.6	5.9	5.9
6	- 0.5	- 3.0	- 7.5	- 4.4	-5	-10.2	- 3.3	- 0.4	1.2	5.2	5.0	4.7
7	- 1.3	- 3.9	- 6.4	- 5.3	-2	- 6.1	- 2.0	0.3	1.3	4.3	5.7	6.5
8	- 0.4	- 3.4	- 3.0	- 3.5	-2	- 3.1	- 1.8	0.1	0.5	5.6	8.9	3.2
9	0.1	- 3.8	0.8	- 7.1	-3	- 0.8	- 1.8	- 1.0	- 0.3	6.7	11.2	2.9
10	4.7	- 2.3	- 0.9	-17.8	-5	- 1.8	- 0.5	0.8	- 0.7	6.0	10.8	3.2
11	2.9	- 0.2	- 2.6	-16.8	- 0.4	1.8	- 1.0	2.6	1.7	4.6	7.6	2.1
12	1.7	- 0.7	- 3.8	-12.5	- 1.5	- 1.1	- 3.3	3.3	1.8	4.6	7.8	1.0
13	1.3	- 1.7	- 3.8	-10.2	- 2.5	- 4.1	- 3.6	1.9	3.0	5.7	8.4	0.4
14	- 0.9	- 2.2	- 3.8	- 6.7	- 4.0	- 4.1	- 4.0	2.4	3.2	5.6	7.7	0.5
15	- 1.0	- 1.7	- 3.8	- 5.8	- 3.8	- 4.5	- 3.4	1.4	2.8	7.8	6.1	0.0
16	- 0.9	- 3.0	- 4.4	- 5.9	- 4.6	- 4.2	- 4.8	2.1	0.5	5.6	8.9	1.5
17	- 1.9	- 4.0	- 4.0	- 5.8	- 5.3	- 4.4	- 5.2	0.6	0.5	6.1	7.8	2.3
18	- 1.5	- 9.8	- 3.8	- 5.8	- 4.5	- 5.7	- 6.1	- 0.2	0.7	8.3	7.7	0.4
19	- 1.0	- 9.5	- 3.6	- 4.8	- 4.0	- 5.0	- 4.7	0.7	1.2	13.1	9.0	1.5
20	- 0.3	- 8.6	- 2.5	- 5.4	- 4.2	- 4.2	- 1.8	0.7	4.7	13.8	8.8	2.2
21	- 0.4	- 8.2	- 4.8	- 2.4	- 4.1	- 3.8	- 1.8	1.2	6.7	11.4	11.5	2.9
22	1.9	- 9.3	- 5.4	- 3.1	- 5.1	- 3.6	- 3.1	- 1.1	2.0	6.2	11.4	2.2
23	- 0.4	-11.5	- 6.4	- 4.2	- 4.3	- 3.3	- 2.4	0.4	0.8	7.6	9.9	2.2
24	0.8	-11.2	- 7.0	- 3.6	- 7.2	- 4.2	- 0.4	0.8	2.3	10.5	13.7	1.7
25	1.0	-11.3	- 7.4	- 3.2	- 9.7	- 3.9	- 2.5	- 0.8	1.7	10.0	14.7	1.0
26	1.2	-14.2	- 8.7	- 5.2	- 9.3	- 4.6	- 3.0	0.0	2.5	14.2	14.3	0.0
27	1.2	-13.1	- 6.9	- 5.1	- 8.8	- 5.9	- 1.1	- 0.2	2.8	17.4	9.8	0.1
28	- 2.0	- 4.1	- 4.3	- 9.8	-10.7	- 3.3	- 1.9	- 1.1	3.8	16.8	11.4	0.5
29	- 3.7	- 5.0	- 3.2	-10		- 2.4	- 1.8	1.0	5.5	10.0	11.3	0.1
30	0.3	-10.3	- 5.7	-5		- 4.5	- 1.4	7.5	4.4	6.6	9.0	- 0.2
31	- 1.0		- 3.7	-1		- 4.6		5.8		7.5	6.3	
Monthly Average	0.2	-5.3	-4.8	-6.2	-4.5	-5.7	-2.7	1.0	2.4	7.9	9.0	2.3

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1988 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-87	Nov-87	Dec-87	Jan-88	Feb-88	Mar-88	Apr-88	May-88	June-88	July-88	Aug-88	Sept-88
1	0.4	- 4.3	-11.2	- 6.1	- 3.3	- 3.3	--	--	1.5	7.5	5.4	2.8
2	- 0.2	- 4.5	- 6.7	- 6.2	- 7.7	- 4.0	--	--	3.5	6.8	5.3	3.2
3	- 0.4	- 4.2	- 8.8	- 4.0	-10.4	- 4.9	--	--	7.3	8.1	7.2	4.7
4	0.6	- 2.6	-10.1	- 2.3	- 5.6	- 3.9	--	--	10.9	6.5	10.6	2.3
5	0.7	- 3.2	- 7.5	- 3.3	- 3.6	- 4.2	--	--	5.9	5.9	6.3	1.8
6	- 0.3	- 4.6	- 5.5	- 3.6	- 3.7	- 4.8	--	--	3.0	4.8	5.3	3.0
7	- 0.2	- 5.6	- 2.9	- 2.3	- 3.2	- 4.3	--	--	5.4	5.2	5.4	1.8
8	0.4	- 6.6	- 3.6	- 2.8	- 4.2	- 4.8	--	--	6.2	7.1	8.8	4.3
9	0.9	- 1.5	- 4.5	- 3.8	- 5.7	- 5.8	--	--	6.5	8.7	8.8	3.3
10	- 0.8	0.5	- 8.0	- 5.6	- 4.5	- 4.3	--	--	5.2	8.0	5.7	3.0
11	- 1.3	0.0	- 2.6	- 7.8	- 5.5	--	- 4.8	--	6.1	5.6	5.6	2.2
12	- 0.4	- 2.7	-12.4	- 6.1	- 5.3	--	--	--	4.9	7.3	8.0	2.3
13	0.3	- 7.3	-14.5	- 4.4	- 5.3	--	--	--	5.5	6.5	7.8	2.6
14	- 1.0	-11.1	-13.6	- 5.3	- 5.3	--	--	--	4.7	8.6	8.8	4.3
15	- 2.1	- 7.7	-12.1	- 5.9	- 9.9	--	--	--	3.8	8.8	9.7	2.7
16	- 2.9	- 3.1	- 7.3	- 6.9	- 6.6	--	--	--	2.8	8.5	8.6	2.9
17	- 1.0	- 3.5	-10.1	- 6.3	- 5.3	- 3.0	--	--	5.3	8.4	5.8	2.7
18	0.2	- 3.3	- 8.1	- 6.3	- 3.5	--	--	--	4.3	8.6	5.0	4.2
19	- 0.3	- 2.4	- 4.2	- 5.8	- 3.9	--	--	--	2.4	8.2	4.1	2.2
20	- 1.9	- 2.0	- 6.1	- 5.5	-14.5	--	--	--	2.4	7.4	4.4	2.7
21	- 0.9	- 2.7	- 9.3	- 4.0	-16.3	--	--	--	6.0	5.0	4.3	2.5
22	- 0.2	- 5.4	- 7.9	- 3.3	- 7.0	--	--	--	5.6	4.9	4.0	- 0.8
23	- 1.6	- 7.4	- 3.1	- 6.0	- 4.6	--	--	--	4.2	4.9	3.4	- 0.8
24	- 2.1	- 8.4	- 4.1	-10.2	- 3.5	--	--	--	4.3	7.6	5.2	0.2
25	- 3.0	- 2.7	- 6.7	-12.7	- 4.2	--	--	--	7.1	6.6	6.3	1.5
26	- 3.0	- 3.3	- 8.4	-11.1	- 7.1	--	--	--	3.8	7.5	5.4	0.1
27	- 5.8	- 4.5	- 7.7	- 8.9	- 6.4	--	--	3.9	2.7	6.1	5.3	- 0.4
28	- 7.8	- 6.2	- 4.4	- 8.8	- 4.6	--	--	1.1	5.1	4.6	5.4	- 0.1
29	- 7.7	- 6.3	- 5.6	- 8.6	- 4.8	--	--	1.0	4.8	5.9	5.7	2.0
30	- 9.8	- 6.6	- 5.7	- 7.0		--	--	1.7	5.3	7.5	4.5	0.8
31	- 5.9		- 7.2	- 4.4		--		0.2		6.7	2.8	
Monthly Average	-1.8	-4.4	-7.4	-6.0	-6.1	N/A	N/A	N/A	4.9	6.9	6.1	2.1

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1989 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-88	Nov-88	Dec-88	Jan-89	Feb-89	Mar-89	Apr-89	May-89	June-89	July-89	Aug-89	Sept-89
1	0.7	- 2.5	-14.2	- 7.2	-13.1	- 1.3	- 1.1	6.3	0.8	15.6	6.8	4.4
2	2.3	- 4.6	- 8.8	- 8.6	-11.4	-10.6	- 1.9	6.7	0.5	14.5	6.2	4.6
3	2.7	- 7.9	- 3.4	- 9.8	- 8.4	-12.5	- 3.7	1.1	2.3	9.3	9.6	5.9
4	2.3	- 9.3	-11.4	-10.0	0.4	-14.3	- 3.7	- 0.4	2.0	11.9	11.7	5.3
5	1.3	- 5.6	-12.7	- 8.9	- 0.8	-10.9	- 3.6	- 1.5	4.5	9.8	12.8	5.3
6	0.1	- 4.4	-10.4	- 7.5	- 8.0	-10.9	- 3.3	- 1.0	5.0	8.3	12.3	6.8
7	- 1.2	- 3.0	- 5.8	- 6.4	- 4.0	-10.1	- 3.3	- 0.4	5.2	11.5	6.6	7.8
8	- 1.0	- 2.1	- 2.7	- 7.4	- 6.1	- 9.9	- 4.6	2.1	2.0	11.8	6.5	8.9
9	- 2.1	- 1.5	- 2.2	- 9.3	- 4.6	-10.8	- 4.5	2.0	1.1	12.9	6.5	8.4
10	- 0.4	- 1.6	- 2.2	- 7.8	- 6.1	- 7.5	- 2.4	2.0	1.3	13.9	9.6	7.1
11	1.4	- 2.3	- 3.0	- 6.7	- 4.9	- 6.0	- 2.4	- 1.8	3.4	14.2	12.0	3.8
12	0.5	- 5.9	- 8.5	-10.7	- 1.5	- 0.4	- 2.4	- 1.4	3.7	10.8	14.1	3.3
13	- 2.1	- 8.4	- 9.2	-13.2	- 0.3	1.8	- 1.6	- 0.3	4.8	8.2	11.2	4.0
14	- 5.9	- 4.7	- 3.7	-12.9	- 0.7	2.8	0.5	- 1.8	3.7	6.2	11.3	2.4
15	- 6.0	- 3.1	- 2.7	-16.0	- 2.8	1.8	- 1.7	- 1.0	1.7	6.5	6.8	4.4
16	- 3.6	- 5.4	- 3.5	-17.1	-4	- 2.0	- 2.1	2.9	1.6	11.4	5.7	3.7
17	- 4.0	- 6.3	- 7.4	-19.4	- 0.7	- 3.7	- 4.0	1.1	7.1	14.7	7.5	1.0
18	- 1.1	- 5.0	- 5.7	-19.2	4.7	- 5.0	- 3.6	- 1.4	10.0	15.0	8.0	3.2
19	- 0.7	- 6.1	- 6.0	-18.0	- 0.5	- 5.8	- 1.0	2.3	6.3	9.5	7.6	2.4
20	- 1.9	- 4.5	- 7.8	-20.4	- 6.7	- 4.7	1.8	5.9	3.0	7.5	6.9	3.4
21	- 2.3	- 4.6	- 8.1	-20.7	- 4.8	- 4.4	0.7	2.1	3.9	7.4	10.2	2.9
22	- 2.5	- 9.8	-10.5	-15.4	- 4.0	- 4.4	- 0.6	3.0	4.0	6.8	8.3	2.7
23	- 6.0	-11.7	-10.5	- 9.9	- 6.1	- 3.5	- 2.2	0.5	4.6	5.2	5.2	2.9
24	- 5.3	- 9.8	- 9.5	- 9.2	- 1.7	- 2.8	- 2.0	0.5	4.2	5.6	6.0	5.2
25	- 6.7	- 6.8	- 5.9	-10.3	- 3.8	- 2.2	- 1.4	2.8	8.6	6.0	8.1	2.7
26	- 5.9	- 6.9	- 4.3	-20.9	- 5.0	- 1.7	2.1	2.4	10.1	9.4	7.9	2.6
27	- 2.7	- 9.4	- 4.6	-26.1	- 6.4	- 9.6	2.0	0.3	11.7	11.5	7.0	1.6
28	- 2.0	- 9.3	- 5.7	-23	- 2.8	-10.6	- 0.8	1.9	13.5	10.9	5.3	4.7
29	- 2.7	- 6.7	- 6.1	-26		-10.0	0.9	2.3	10.4	6.6	6.4	4.0
30	- 2.8	- 8.9	- 6.6	-21.6		- 5.8	3.9	2.1	10.6	7.7	4.7	1.9
31	- 2.7		- 5.6	-14.4		- 3.4		0.8		7.4	4.3	
Monthly Average	-1.9	-5.9	-6.7	-14.0	-4.1	-5.8	-1.5	1.3	5.1	9.9	8.2	4.2

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1990 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-89	Nov-89	Dec-89	Jan-90	Feb-90	Mar-90	Apr-90	May-90	June-90	July-90	Aug-90	Sept-90
1	1.6	0.5	- 3.8	-10.8	--	--	- 4.0	- 0.6	5.3	8.3	4.6	8.1
2	0.7	- 0.1	- 2.4	- 9.9	--	--	- 5.9	- 1.5	7.1	8.9	4.9	5.2
3	0.4	- 0.7	- 2.8	- 5.2	--	--	- 4.5	- 0.4	9.9	13.3	7.2	5.4
4	1	- 2.7	- 2.2	- 4.4	--	--	- 3.3	0.2	8.0	10.6	6.0	7.5
5	0	- 5.8	- 2.4	- 6.5	--	--	- 5.8	1.6	9.6	10.2	6.8	5.3
6	1	-13.4	- 3.2	- 7.8	--	--	- 0.8	1.2	10.6	8.1	5.8	5.4
7	1	-15.2	- 3.4	-11.5	--	--	1.1	0.1	8.0	5.6	5.0	5.5
8	- 0.9	-19.3	- 4.1	-16.6	--	--	4.5	1.0	5.4	4.9	5.2	5.7
9	- 3.4	-21.3	- 4.6	-17.2	--	--	3.7	1.8	4.8	3.0	6.1	5.5
10	- 3.0	-18.2	- 4.2	- 9.7	--	--	0.4	2.6	3.3	4.2	8.2	6.7
11	- 4.1	-16.3	- 2.2	- 5.3	--	--	0.3	2.8	6.4	4.2	11.3	6.7
12	- 4.6	-14.6	- 2.9	- 6.4	--	--	3.0	3.8	8.1	6.8	15.9	7.4
13	- 3.7	-13.6	- 2.6	- 6.7	--	--	4.2	3.1	4.0	5.5	16.4	6.2
14	- 2.3	-10.8	- 4.7	- 7.5	--	--	2.2	2.5	3.6	4.0	16.4	6.4
15	- 0.2	- 5.7	- 2.3	- 6.8	--	--	3.5	3.0	3.8	7.2	9.5	3.9
16	- 0.6	- 4.6	- 1.6	- 4.7	--	--	1.4	1.5	2.9	10.5	7.9	3.4
17	- 1.2	- 5.5	- 3.6	- 3.9	--	--	0.2	2.7	2.5	13.4	7.0	2.8
18	- 0.6	- 8.7	- 5.3	- 4.1	--	- 1.9	0.1	2.0	3.7	15.9	7.9	4.8
19	- 2.1	-10.2	- 6.6	- 4.4	--	- 3.8	- 0.3	3.5	3.4	16.2	6.7	4.5
20	- 4.6	-14.4	- 4.8	- 4.5	--	- 2.1	- 1.6	6.2	2.8	14.1	6.0	4.8
21	- 6.9	- 8.3	- 2.3	- 4.7	--	- 2.1	0.6	- 0.4	3.7	12.2	6.9	3.4
22	- 7.8	- 3.7	- 2.9	- 5.7	--	2.0	2.6	0.8	7.0	13.0	8.4	2.5
23	- 4.9	- 4.2	- 2.6	-10.0	--	- 0.3	1.9	1.0	4.9	11.4	7.4	2.0
24	- 4.9	- 4.4	- 2.4	-12.0	--	- 3.3	0.2	1.2	8.8	6.2	10.3	3.5
25	- 6.5	- 4.8	- 3.9	-14.0	--	- 2.7	2.4	2.8	8.3	5.0	10.4	2.2
26	- 9.1	- 4.6	-11.8	-13.0	--	- 1.3	4.0	5.6	7.8	5.2	7.1	1.9
27	- 5.7	- 4.6	- 7.2	-11.6	--	- 3.1	3.1	5.5	10.5	5.0	6.0	1.7
28	- 2.4	- 5.5	- 5.5	-13.0	--	- 4.4	3.9	4.6	14.4	5.1	5.3	3.2
29	- 3.3	- 4.5	-13.7	-13.1		- 3.1	- 0.4	4.3	14.9	4.2	7.5	1.7
30	- 3.9	- 4.5	-14.2	-14.3		- 3.5	- 0.5	5.5	13.9	5.0	7.4	1.7
31	- 1.7		-14.1			- 4.6		6.8		4.8	8.2	
Monthly Average	-2.7	-8.3	-4.8	-8.8	N/A	N/A	0.5	2.4	6.9	8.1	8.1	4.5

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1991 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-90	Nov-90	Dec-90	Jan-91	Feb-91	Mar-91	Apr-91	May-91	June-91	July-91	Aug-91	Sept-91
1	- 0.3	- 3.2	-14.8	- 7.8	-11.9	1.0	- 7.0	- 2.4	0.3	6.6	3.9	5.2
2	- 0.9	- 1.1	- 9.5	- 7.6	-13.4	0.4	- 5.2	- 3.1	1.1	10.5	3.3	4.2
3	- 0.6	0.8	- 6.8	- 3.8	-12.5	0.2	- 4.5	- 2.2	0.8	6.9	4.7	5.0
4	- 0.3	1.4	- 7.4	- 2.0	-12.9	- 6.7	- 3.6	- 0.6	0.6	5.4	5.2	5.5
5	- 0.6	- 1.7	- 3.4	- 4.2	-13.7	- 6.4	- 2.7	- 0.1	1.9	5.9	5.5	7.3
6	1.4	- 8.7	- 4.2	- 5.1	-17.8	- 4.6	- 2.4	- 0.1	1.3	5.7	6.8	6.2
7	1.7	-16.1	- 4.4	- 5.5	-18.8	- 5.1	- 3.9	- 2.5	2.3	6.0	10.2	6.3
8	1.7	-20.1	- 7.4	- 6.3	-10.0	- 8.3	- 4.7	- 3.1	2.3	6.3	11.8	3.5
9	1.7	-21.7	- 9.0	- 9.8	-10.3	-10.0	- 3.4	- 3.1	2.0	5.7	6.3	4.3
10	0.9	-18.3	- 6.5	- 8.2	- 1.7	-10.0	- 5.1	- 2.8	5.6	5.5	5.5	4.8
11	0.8	-10.3	- 5.1	- 7.7	- 2.6	- 9.2	- 3.4	- 2.5	6.5	5.2	5.6	3.6
12	- 1.6	- 6.3	- 4.8	- 8.2	- 3.4	- 9.3	- 2.6	- 1.7	8.6	4.5	6.6	4.6
13	- 4.2	- 7.7	- 8.2	-15.6	- 2.7	- 7.9	- 3.0	- 0.5	6.0	5.9	6.6	4.0
14	- 6.4	- 6.0	-11.8	-18.8	- 2.4	- 6.1	- 2.6	- 0.9	10.3	8.4	5.7	4.0
15	- 6.3	- 3.3	-10.2	-11.6	- 2.5	- 9.8	- 2.8	- 0.2	11.0	8.6	6.8	3.2
16	- 4.9	- 4.6	-10.5	- 3.8	- 3.9	-10.7	- 3.2	- 0.3	5.0	5.2	7.8	4.7
17	- 5.6	- 3.6	- 7.5	- 6.0	- 5.6	- 5.8	- 2.8	- 0.9	2.7	4.4	5.5	4.5
18	- 3.5	- 3.4	- 5.7	- 7.5	-11.2	- 6.4	- 1.0	- 1.5	2.1	5.6	4.3	3.9
19	- 0.1	- 4.4	- 4.9	- 3.0	-14.1	- 6.8	- 3.3	0.9	6.7	5.4	6.8	3.6
20	- 0.4	- 7.3	- 3.6	- 4.8	-11.5	- 6.4	- 3.3	3.7	12.4	7.1	8.1	4.1
21	- 2.4	- 8.2	- 3.8	- 5.1	-11.5	- 8.3	- 3.4	6.6	14.6	10.9	7.3	3.3
22	- 1.8	-13.7	- 3.0	- 4.4	- 9.2	- 7.8	- 3.7	9.8	12.0	8.3	8.8	1.7
23	- 0.5	-13.2	- 2.2	- 4.6	- 3.0	- 3.9	- 1.9	9.4	8.0	5.6	8.8	2.9
24	- 2.0	-10.9	- 2.0	- 3.3	- 0.7	0.1	- 0.1	10.2	5.5	4.7	5.0	1.3
25	- 1.0	- 7.6	- 1.9	3.3	- 1.2	1.7	- 2.1	4.4	6.0	6.7	4.4	2.3
26	- 0.4	- 9.3	- 5.3	- 1.1	1.7	- 3.0	- 2.0	0.5	9.1	8.6	5.5	2.6
27	- 2.5	-11.6	- 6.1	- 2.8	8.7	- 5.3	- 3.1	- 0.2	7.1	9.9	2.5	1.0
28	- 1.6	-17.0	- 6.4	- 6.9	4.2	- 6.2	- 2.4	- 0.2	10.1	7.7	5.4	- 0.3
29	- 2.4	-21.1	- 3.2	-10.6		- 5.1	- 3.1	0.1	9.8	5.9	7.6	0.6
30	- 3.2	-21.1	- 8.8	-13.1		- 6.1	- 2.3	- 0.9	8.6	5.0	7.5	0.5
31	- 4.2		-10.3	-15.6		- 4.2		1.1	.	3.4	5.9	
Monthly Average	-1.6	-9.3	-6.4	-6.8	-6.9	-5.7	-3.2	0.5	6.0	6.5	6.3	3.6

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1992 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-91	Nov-91	Dec-91	Jan-92	Feb-92	Mar-92	Apr-92	May-92	June-92	July-92	Aug-92	Sept-92
1	0.4	- 1.0	- 2.5	- 3.8	-11.1	-18.1	- 2.4	- 2.7	4.1	12.6	5.3	4.4
2	0.5	- 1.1	- 3.5	- 4.4	- 7.9	-20.0	- 5.7	- 2.8	2.5	14.2	5.5	1.5
3	0.9	0.4	- 3.5	- 5.6	-12.5	-18.7	- 8.7	- 4.4	1.6	13.2	6.0	4.6
4	0.1	0.0	- 2.6	- 5.4	-12.2	-22.1	- 8.1	- 5.3	1.6	9.0	6.6	4
5	- 0.1	0.5	- 2.8	- 7.8	- 6.4	-15.4	- 7.7	- 5.0	2.7	6.4	7.0	3.1
6	- 0.2	- 0.3	- 1.6	- 5.4	- 6.6	- 8.3	- 4.4	- 5.1	6.4	5.3	6.3	1.2
7	- 0.1	0.1	- 2.8	- 4.0	- 6.9	- 5.4	- 5.7	- 3.6	9.1	4.2	9.0	5.7
8	- 0.3	0.3	- 7.2	- 3.2	- 3.7	- 4.5	- 2.8	- 2.8	8.6	5.1	10.9	4.6
9	- 1.5	- 2.3	- 6.8	- 2.3	- 1.6	- 5.3	- 3.6	- 2.5	12.6	6.4	7.8	4.7
10	- 3.5	- 1.8	-10.9	- 2.5	- 7.0	- 2.9	- 3.3	- 3.6	14.1	6.9	6.5	- 1.8
11	- 2.5	- 1.7	-11.4	- 4.1	- 7.4	- 4.4	-10.1	- 2.6	12.2	7.1	5.5	- 1.2
12	- 2.2	- 2.1	- 9.9	- 6.8	- 9.7	- 5.4	-12	- 2.1	9.5	7.8	5.1	1.9
13	- 3.1	- 7.0	- 9.2	- 5.6	- 9.8	- 6.3	-12	1	7.5	7.3	3.8	4.2
14	- 0.4	- 6.9	- 7.8	- 3.9	-10.6	- 6.1	-5	0.7	9.8	6.5	4.1	4.3
15	- 4.3	- 4.3	- 5.7	- 3.5	-13.7	- 5.3	- 2.4	- 3.3	4.1	6.3	3.3	- 0.3
16	- 6.3	- 6.8	- 5.8	- 3.6	-16.1	- 4.2	- 3.4	- 4.0	4.0	6.5	3.6	0.2
17	- 3.7	- 6.3	- 7.8	- 4.2	-16.4	- 5.5	- 1.8	- 0.3	2.2	6.5	3.7	0.8
18	- 2.0	- 3.7	-10.7	- 3.7	-10.5	- 6.8	- 4.2	2.3	2.8	6.4	3.8	1.9
19	- 1.0	- 4.3	-12.6	- 6.4	-13.0	- 5.4	- 2.5	2.9	3.1	8.6	3.8	- 1.7
20	- 0.4	- 2.5	-12.3	- 8.9	-14.5	- 5.8	- 2.5	4.8	6.3	8.9	4.2	- 4.0
21	- 2.8	- 8.6	- 9.7	- 7.6	-10.4	- 6.4	- 0.8	4.8	4.2	5.5	4.9	- 5.4
22	- 2.2	-10.6	- 9.4	- 8.2	-10.9	- 6.9	- 0.5	5.9	3.2	4.9	5.2	- 5.1
23	- 2.6	- 8.6	- 5.2	-12.2	- 7.0	- 5.5	- 1.4	4.7	4.7	5.3	5.1	- 6.3
24	- 1.4	- 1.3	- 5.2	- 9.0	- 6.9	- 5.0	- 0.5	4.9	2.2	7.5	4.8	- 4.0
25	- 2.5	- 3.5	- 4.3	- 5.7	- 4.2	- 5.1	1.0	3.5	3.4	7.4	1.7	- 3.9
26	- 3.6	- 5.4	- 5.7	- 5.4	- 3.4	- 6.3	- 0.1	2.4	2.6	6.2	1.9	- 4.6
27	- 3.5	- 5.3	- 9.4	- 6.5	- 6.2	- 9.5	- 1.4	2.4	4.0	6.7	2.8	- 1.6
28	- 3.5	- 3.9	- 5.4	- 5.8	-11.0	-10.2	- 2.9	3.5	8.2	5.3	3.2	- 0.1
29	- 2.9	- 3.5	-10.7	- 7.2	-12.1	-11.3	- 2.3	3.6	7.2	4.5	5.7	- 2.6
30	- 2.4	- 2.8	- 7.0	- 8.3		- 8.7	- 2.3	2.6	8.5	5.6	4.3	- 2.2
31	- 0.5		- 4.2	-10.4		- 4.3		5.7		6.5	4.8	
Monthly Average	-1.9	-3.5	-6.9	-5.9	-9.3	-8.2	-4.0	0.2	5.8	7.1	5.0	0.1

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1993 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-92	Nov-92	Dec-92	Jan-93	Feb-93	Mar-93	Apr-93	May-93	June-93	July-93	Aug-93	Sept-93
1	0.2	- 8.4	- 3.9	- 7.1	-22.4	- 5.2	- 4.2	- 0.6	10.9	5.7	8.9	6.3
2	0.6	- 2.5	- 2.9	- 8.7	-18.4	- 7.2	- 3.8	- 0.3	5.4	3.1	8.7	5.1
3	0.9	- 1.1	- 7.0	- 7.0	-18.2	- 5.8	- 3.3	- 0.8	5.8	4.2	9.2	4.5
4	0.1	- 2.1	- 9.6	- 7.5	-12.6	- 3.7	- 2.7	- 1.8	7.2	3.7	7.9	5.1
5	0.1	- 1.2	- 5.5	- 4.9	- 4.8	- 2.9	- 2.8	- 1.2	4.3	4.8	10.6	6.0
6	1.9	- 1.3	- 6.8	- 4.3	-11.3	- 4.8	- 1.2	- 1.3	2.0	5.5	10.4	5.8
7	- 0.8	- 3.3	- 6.6	- 3.6	-11.7	- 6.0	- 1.0	- 0.2	1.4	8.6	13.0	6.2
8	- 1.5	- 2.5	- 9.9	- 6.2	- 2.6	- 5.5	- 2.3	- 0.4	2.0	11.3	14.5	6.2
9	- 2.9	- 4.3	-11.3	- 5.8	0.9	- 8.7	- 2.6	0.3	4.8	13.4	15.1	3.3
10	- 6.4	- 8.0	- 8.8	- 5.7	0.0	- 6.3	- 3.1	- 1.5	7.5	15.2	11.7	5.5
11	- 6.7	- 8.3	- 9.4	- 6.3	- 1.5	- 3.6	- 5.8	- 1.6	5.1	15.5	9.7	4.1
12	- 5.3	- 9.6	- 6.2	- 6.0	- 1.7	- 2.7	- 4.0	- 1.1	6.3	16.9	9.9	4.9
13	- 5.0	- 7.3	- 3.7	- 6.1	- 1.2	- 2.7	- 2.3	3.6	6.8	16.7	8.1	6.8
14	- 4.0	- 1.4	-10.2	- 5.8	- 2.4	- 4.6	- 3.0	7.3	7.4	15.9	6.5	7.1
15	- 5.0	- 2.7	-14.4	- 8.1	- 1.8	- 5.9	- 2.3	7.4	8.4	15.5	5.1	3.9
16	- 1.6	- 0.6	-13.2	- 5.5	0.6	- 6.9	- 2.1	6.3	5.2	14.1	6.2	3.0
17	- 2.2	- 1.8	- 9.0	- 5.0	2.7	- 8.7	- 1.6	5.1	4.4	12.0	6.9	- 1.4
18	- 3.9	- 2.9	- 7.2	- 9.1	1.4	- 9.0	- 1.0	4.6	5.8	10.3	4.3	1.5
19	- 6.5	- 2.1	-10.6	-13.4	0.5	- 7.1	- 2.6	8.9	7.9	10.8	5.8	1.1
20	- 2.2	- 3.9	-12.2	-20.3	1.2	- 6.8	- 1.4	9.8	6.5	8.6	5.1	2.5
21	- 1.9	- 4.0	-12.3	-21	- 2.2	- 3.6	0.7	4.7	6.2	7.4	4.9	0.9
22	0.4	- 3.4	- 9.2	-22	- 5.8	- 3.3	3.0	3.0	5.9	8.0	4.4	0.6
23	- 1.8	- 0.1	- 7.6	-21	- 5.2	- 5.9	4.8	3.1	6.1	7.9	6.2	- 0.6
24	- 0.9	- 0.9	- 6.1	-22	- 5.4	- 9.5	5.4	3.0	7.9	7.3	7.1	- 0.1
25	0.4	- 2.8	- 5.3	-19	- 5.7	- 8.1	2.7	2.1	6.1	7.0	5.2	- 0.7
26	- 0.9	- 4.3	- 8.7	-10	- 2.9	- 7.6	1.9	1.9	6.2	9.0	6.8	- 0.1
27	- 2.8	- 3.8	- 6.1	-5	- 3.4	- 6.6	0.4	4.6	5.2	13.9	7.3	1.0
28	- 2.1	- 4.2	- 8.3	- 4.6	- 3.7	- 4.9	- 0.5	7.7	5.9	10.2	6.5	0.6
29	- 0.9	- 7.4	- 6.2	- 6.6		- 3.4	- 1.7	12.5	5.6	11.2	6.9	0.8
30	- 3.9	- 6.8	- 4.2	-13.4		- 2.8	- 1.3	13.5	5.2	13.0	7.9	2.7
31	- 9.4		- 5.9	-18.4		- 3.0		11.8		8.1	6.9	
Monthly Average	-2.4	-3.8	-8.0	-10.0	-4.9	-5.6	-1.3	3.6	5.8	10.2	8.0	3.1

Table 4. Daily and monthly average air temperature at 990 meters altitude, Wolverine Glacier Basin, 1994 hydrologic year

[Data in degrees Celsius; monthly average is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-93	Nov-93	Dec-93	Jan-94	Feb-94	Mar-94	Apr-94	May-94	June-94	July-94	Aug-94	Sept-94
1	1.2	- 4.1	--	--	--	- 4.6	- 0.6	- 0.9	7.0	12.3	9.4	5.5
2	- 0.5	- 5.3	--	--	--	- 8.0	- 0.4	- 0.7	3.1	5.3	8.8	6.3
3	1.5	- 3.0	--	--	--	-13.8	0.5	- 1.1	4.2	7.1	9.6	5.8
4	5.6	- 1.6	--	--	0.4	-18.2	1.6	- 3.1	6.5	3.9	12.8	6.1
5	5.6	- 0.8	--	--	- 2.4	-17.1	1.1	- 1.8	4.8	4.7	12.5	9.3
6	3.7	- 0.2	--	--	- 4.5	- 7.6	0.3	- 0.1	3.9	5.5	13.0	6.7
7	4.0	- 1.2	--	--	- 4.5	- 2.5	- 1.9	- 0.9	2.8	10.3	9.2	8.5
8	4.5	- 1.3	--	--	- 6.1	- 2.9	- 2.5	- 1.8	2.8	10.6	11.9	4.4
9	2.3	- 1.9	--	--	- 8.5	- 2.8	- 3.1	- 0.1	4.6	4.4	13.0	8.4
10	1.3	- 2.1	--	--	-10.8	- 2.6	- 2.3	0.3	4.5	5.1	11.8	4.6
11	1.6	- 3.8	--	--	-12.4	- 4.2	- 3.6	2.3	7.7	6.9	12.7	4.5
12	1.3	- 3.1	--	--	-16.2	- 2.5	- 4.1	0.3	6.6	7.3	13.5	6.8
13	1.8	- 3.3	--	--	-15.3	- 3.8	- 3.5	1.7	11.1	7.9	15.1	5.1
14	0.8	- 5.2	--	--	-13.3	- 3.0	- 3.9	1.5	15.9	7.2	15.0	3.5
15	0.8	- 8.9	--	--	-12.1	- 5.1	- 7.5	2.7	14.9	6.9	12.6	4.6
16	- 0.1	- 4.5	--	--	-10.3	-10.2	-13.2	5.4	8.5	6.4	10.4	3.7
17	- 3.1	- 4.6	--	--	-11.2	-11.4	- 6.8	0.7	10.5	6.2	11.9	2.1
18	- 2.8	- 5.7	--	--	-13.2	-13.8	- 1.5	0.2	6.5	5.8	12.0	1.6
19	- 2.3	-12.3	--	--	-15.6	-16.4	0.0	0.4	5.1	5.5	14.6	1.2
20	- 1.1	-12.3	--	--	-19.4	-16.7	- 0.6	0.0	4.7	5.5	9.1	1.9
21	- 0.5	--	--	--	-21.1	-12.6	0.9	- 0.8	4.0	4.1	7.9	2.7
22	- 2.7	--	--	--	-16.9	- 9.2	1.1	0.0	5.8	5.2	7.7	2.5
23	- 2.9	--	--	--	-12.9	- 5.0	- 1.0	- 0.2	7.6	6.2	8.3	1.4
24	- 3.3	--	--	--	-11.8	- 2.1	3.5	- 0.4	5.0	6.1	6.5	0.5
25	- 1.5	--	--	--	-12.0	- 2.9	5.0	2.2	2.8	8.0	6.2	2.6
26	- 1.6	--	--	--	-11.8	- 4.4	1.2	1.2	3.1	7.8	7.3	0.3
27	- 2.7	--	--	--	- 7.7	- 6.5	- 0.9	1.5	2.3	10.7	4.4	- 0.4
28	- 1.5	--	--	--	- 3.4	- 3.5	- 0.7	3.4	4.3	13.0	4.2	0.5
29	- 1.7	--	--	--		- 1.4	- 0.4	5.6	8.2	14.0	6.1	1.3
30	- 3.1	--	--	--		- 0.4	- 1.9	1.6	11.5	10.8	6.5	0.7
31	- 2.8		--	--		- 2.0		3.6		12.7	6.7	
Monthly Average	0.1	N/A	N/A	N/A	-10.9	-7.0	-1.5	0.7	6.3	7.5	10.0	3.8

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1967 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-66	Nov-66	Dec-66	Jan-67	Feb-67	Mar-67	Apr-67	May-67	June-67	July-67	Aug-67	Sept-67
1	--	--	--	--	--	--	--	--	1	3	0	6
2	--	--	--	--	--	--	--	--	0	0	0	7
3	--	--	--	--	--	--	--	--	1	0	0	0
4	--	--	--	--	--	--	--	--	0	1	0	1
5	--	--	--	--	--	--	--	--	1	1	1	7
6	--	--	--	--	--	--	--	--	0	4	2	74
7	--	--	--	--	--	--	--	--	7	3	24	24
8	--	--	--	--	--	--	--	--	3	6	5	0
9	--	--	--	--	--	--	--	--	0	4	0	0
10	--	--	--	--	--	--	--	--	6	0	0	0
11	--	--	--	--	--	--	--	--	0	0	0	8
12	--	--	--	--	--	--	--	--	0	0	3	34
13	--	--	--	--	--	--	--	--	0	0	12	20
14	--	--	--	--	--	--	--	--	0	0	7	18
15	--	--	--	--	--	--	--	--	0	0	0	16
16	--	--	--	--	--	--	--	--	0	1	1	31
17	--	--	--	--	--	--	--	--	0	0	0	56
18	--	--	--	--	--	--	--	--	0	0	1	16
19	--	--	--	--	--	--	--	--	0	1	0	7
20	--	--	--	--	--	--	--	--	1	9	0	12
21	--	--	--	--	--	--	--	--	1	6	2	0
22	--	--	--	--	--	--	--	--	0	0	6	0
23	--	--	--	--	--	--	--	--	0	3	1	11
24	--	--	--	--	--	--	--	--	0	0	29	5
25	--	--	--	--	--	--	--	--	0	0	4	24
26	--	--	--	--	--	--	--	--	0	1	0	31
27	--	--	--	--	--	--	--	--	0	0	0	2
28	--	--	--	--	--	--	--	--	0	0	2	0
29	--	--	--	--		--	--	--	2	1	3	4
30	--	--	--	--		--	--	--	6	2	3	0
31	--		--	--		--		--		0	0	
Monthly Total	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	29	46	106	414

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1968 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-67	Nov-67	Dec-67	Jan-68	Feb-68	Mar-68	Apr-68	May-68	June-68	July-68	Aug-68	Sept-68
1	0	--	--	--	--	--	--	1	3	3	5	0
2	0	--	--	--	--	--	--	1	3	0	0	0
3	0	--	--	--	--	--	--	2	3	1	0	0
4	1	--	--	--	--	--	--	0	0	1	0	0
5	1	--	--	--	--	--	--	10	1	1	0	0
6	0	--	--	--	--	--	--	5	3	0	0	0
7	0	--	--	--		--	--	2	0	0	0	3
8	0	--	--	--	17	--	--	4	1	0	0	17
9	1	--	--	--	10	--		4	0	0	0	33
10	0	--	--	--	2	--	0	10	2	1	0	10
11	2	--	--	--	0	--	0	13	7	8	0	1
12	1	--	--	--	33	--	0	0	0	0	7	2
13	0	--	--	--	24	--	0	0	1	0	0	4
14	3	--	--	--	19	--	0	0	0	1	5	2
15	3	--	--	--	3	--	0	7	0	0	4	0
16	--	--	--	--	--	--	5	0	0	0	8	0
17	--	--	--	--	--	--	5	0	0	0	0	0
18	--	--	--	--	--	--	4	0	3	0	0	5
19	--	--	--	--	--	--	0	0	2	0	4	0
20	--	--	--	--	--	--	5	0	4	1	9	0
21	--	--	--	--	--	--	0	0	0	0	3	0
22	--	--	--	--	--	--	0	0	0	0	0	0
23	--	--	--	--	--	--	0	0	0	0	0	0
24	--	--	--	--	--	--	0	0	0	0	0	0
25	--	--	--	--	--	--	0	0	0	0	2	0
26	--	--	--	--	--	--	3	0	0	0	0	8
27	--	--	--	--	--	--	0	0	0	3	0	16
28	--	--	--	--	--	--	2	1	0	0	0	5
29	--	--	--	2		--	0	8	0	2	0	0
30	--	--	--	4		--	0	4	0	0	2	4
31	--		--	5		--		0		4	0	
Monthly Total	N/A	N/A	N/A	N/A	N/A	N/A	N/A	72	33	26	49	110

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1969 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-68	Nov-68	Dec-68	Jan-69	Feb-69	Mar-69	Apr-69	May-69	June-69	July-69	Aug-69	Sept-69
1	5	0	0	2	3	2	2	1	0	0	8	0
2	10	10	1	1	3	1	20	2	0	0	0	0
3	7	7	5	0	1	1	12	6	0	0	0	2
4	0	0	0	0	0	0	4	0	1	0	0	1
5	7	2	2	0	0	0	3	1	1	0	1	0
6	0	13	0	0	0	0	3	5	6	0	0	0
7	0	0	0	0	0	10	1	2	0	0	0	0
8	0	10	0	0	0	10	5	2	0	0	0	13
9	0	2	3	0	3	1	1	5	1	0	0	21
10	1	2	0	0	7	0	3	1	1	0	0	34
11	3	4	4	1	11	0	2	2	0	0	0	4
12	0	9	8	3	0	2	13	0	0	0	0	0
13	0	3	0	0	0	0	0	0	1	0	0	2
14	0	0	0	0	0	5	0	0	1	0	0	1
15	2	0	8	0	1	1	1	1	3	0	0	1
16	0	0	15	0	0	0	0	0	5	0	0	0
17	0	4	0	0	0	0	2	0	0	0	0	0
18	0	6	0	0	4	0	0	0	1	0	0	0
19	0	0	0	0	20	5	0	0	0	0	0	0
20	0	0	0	0	2	0	1	0	0	0	0	1
21	0	1	0	0	12	4	1	21	0	0	0	0
22	0	4	3	0	0	1	1	9	0	0	0	0
23	0	0	0	0	8	1	0	0	0	3	8	1
24	2	0	5	0	0	0	0	0	0	4	0	0
25	2	0	0	0	0	2	7	0	0	16	0	0
26	7	8	6	0	2	2	2	1	0	0	0	0
27	1	2	0	0	12	0	3	9	0	0	0	7
28	4	2	1	2	5	0	4	0	0	10	7	23
29	0	0	2	2		3	3	0	0	4	2	14
30	0	3	1	0		4	1	3	0	3	1	3
31	0		0	1		2		8		4	0	
Monthly Total	51	92	64	12	94	57	95	79	21	44	27	128

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1970 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-69	Nov-69	Dec-69	Jan-70	Feb-70	Mar-70	Apr-70	May-70	June-70	July-70	Aug-70	Sept-70
1	6	19	9	2	3	0	2	0	1	0	3	0
2	1	8	10	0	6	1	0	1	0	0	1	1
3	28	3	0	0	2	4	0	1	0	0	3	1
4	4	2	5	0	0	0	0	1	0	5	0	6
5	7	1	5	0	0	0	0	1	0	2	1	0
6	69	1	11	0	6	14	0	9	0	0	3	0
7	23	3	1	0	0	9	0	2	0	0	0	0
8	32	4	3	0	22	1	0	6	6	1	1	2
9	3	0	0	0	15	8	0	0	0	0	0	0
10	14	0	0	0	13	0	0	0	0	1	0	0
11	50	0	0	0	11	1	1	0	1	5	0	0
12	40	2	3	0	21	0	5	0	3	9	2	0
13	26	0	3	0	0	1	8	1	1	0	5	0
14	7	0	1	0	0	8	3	3	0	0	9	1
15	0	0	18	0	1	4	1	2	1	2	0	1
16	3	0	34	0	3	3	6	0	2	0	6	0
17	4	0	31	0	1	12	2	2	2	0	19	0
18	8	0	7	0	6	24	1	0	2	2	11	1
19	3	0	13	6	4	13	0	1	0	0	1	1
20	0	2	20	1	4	6	4	0	0	0	13	1
21	2	2	1	5	5	0	7	0	0	9	3	1
22	0	0	1	1	7	0	2	0	0	0	4	0
23	0	1	2	0	9	0	1	6	0	0	3	0
24	0	2	11	2	12	2	1	0	0	0	4	0
25	0	38	5	0	12	11	0	0	0	0	0	3
26	0	18	3	1	0	5	0	0	0	0	0	1
27	0	19	3	4	0	7	0	0	0	0	0	6
28	1	11	15	0	0	5	0	0	1	0	4	3
29	0	5	11	0		3	0	0	0	2	7	1
30	10	1	3	0		1	4	0	0	4	5	3
31	24		17	0		0		1		8	1	
Monthly Total	365	142	246	22	163	143	48	37	20	50	109	33

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1971 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-70	Nov-70	Dec-70	Jan-71	Feb-71	Mar-71	Apr-71	May-71	June-71	July-71	Aug-71	Sept-71
1	0	4	0	0	7	4	0	4	6	1	8	7
2	4	1	1	31	4	0	3	3	7	2	0	1
3	1	8	0	14	1	7	15	6	0	0	3	0
4	3	6	0	10	1	1	2	0	0	0	0	6
5	0	2	0	0	12	2	3	3	2	0	9	10
6	6	0	0	7	15	0	1	4	0	0	13	--
7	0	3	0	0	7	0	0	1	1	0	1	--
8	0	3	0	0	6	0	3	0	4	1	3	--
9	3	0	6	2	11	0	0	0	21	0	0	--
10	0	0	1	0	2	1	0	3	0	0	0	--
11	0	4	7	0	1	6	15	4	0	0	0	--
12	0	1	3	0	0	1	9	10	0	0	0	--
13	14	3	7	3	0	4	16	3	0	7	1	--
14	3	0	4	0	0	0	27	18	1	0	0	--
15	6	0	6	2	1	0	3	2	0	0	0	--
16	0	2	3	1	3	45	4	3	0	0	0	--
17	2	3	1	0	29	29	6	6	0	1	0	--
18	1	3	1	0	6	0	3	0	1	0	22	--
19	0	0	2	0	13	0	2	7	0	1	1	--
20	0	0	0	0	23	0	1	16	0	2	0	--
21	0	2	8	0	3	1	9	15	1	0	10	--
22	1	1	0	0	4	2	5	3	1	0	0	--
23	2	0	14	0	2	2	4	1	0	3	3	--
24	2	0	7	0	1	0	6	0	1	8	0	--
25	0	0	4	0	1	0	8	1	0	13	2	--
26	0	0	5	0	0	0	0	0	0	0	1	--
27	0	0	3	0	0	0	0	1	1	0	15	--
28	18	9	0	0	0	6	0	10	1	0	6	--
29	2	6	0	0		0	1	5	0	0	8	--
30	42	0	0	0		1	0	2	1	0	1	--
31	54		0	3		1		8		7	1	
Monthly Total	164	61	83	73	153	113	146	139	49	46	108	N/A

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1972 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-71	Nov-71	Dec-71	Jan-72	Feb-72	Mar-72	Apr-72	May-72	June-72	July-72	Aug-72	Sept-72
1	15	1	0	1	0	0	0	0	2	2	0	0
2	10	1	0	4	0	0	0	2	2	1	1	7
3	1	1	0	0	2	0	3	1	0	1	0	17
4	1	0	0	3	3	0	2	1	0	0	0	3
5	0	2	0	2	3	0	3	3	0	0	0	2
6	3	4	0	0	0	0	0	2	0	0	2	0
7	10	0	0	4	0	0	7	0	0	0	0	0
8	13	0	0	1	8	0	3	0	0	0	0	0
9	10	4	0	7	3	0	0	2	0	0	0	4
10	7	0	1	0	1	0	0	1	0	2	0	8
11	1	3	1	0	3	0	0	1	1	0	2	8
12	0	2	6	0	2	0	5	2	2	0	4	40
13	0	1	0	0	0	0	0	0	0	0	2	2
14	0	1	0	0	1	0	0	2	0	0	3	3
15	0	3	5	1	5	0	0	2	1	0	8	0
16	7	4	3	2	2	1	0	3	2	2	0	0
17	0	9	6	0	0	0	0	2	1	2	6	1
18	1	25	2	0	0	0	3	0	1	0	1	2
19	0	12	5	0	0	0	2	2	0	0	2	0
20	0	1	5	0	0	7	0	8	5	0	1	0
21	0	1	0	0	0	7	0	4	3	0	4	0
22	1	3	0	0	0	1	0	2	0	0	35	0
23	3	0	0	0	0	4	0	1	1	0	14	0
24	0	0	0	0	0	0	0	0	0	0	11	0
25	0	1	0	0	0	0	0	0	0	1	3	0
26	0	2	0	0	0	0	0	2	2	1	1	2
27	4	0	0	0	0	0	0	6	0	1	1	0
28	5	1	8	0	0	2	4	1	1	1	0	4
29	2	4	7	3	1	2	0	1	2	3	5	3
30	0	0	5	1		0	0	0	3	0	18	2
31	0		5	1		0		0		2	0	
Monthly Total	94	86	59	30	34	24	32	51	29	19	124	108

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1973 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-72	Nov-72	Dec-72	Jan-73	Feb-73	Mar-73	Apr-73	May-73	June-73	July-73	Aug-73	Sept-73
1	3	0	1	0	4	0	1	12	0	0	0	1
2	0	0	0	0	3	3	4	5	1	0	0	1
3	1	0	0	4	1	2	0	2	2	0	0	4
4	5	1	6	0	0	1	3	5	0	0	1	13
5	9	1	2	5	4	0	2	2	0	0	4	17
6	2	0	0	0	3	0	11	3	2	0	4	3
7	0	0	0	3	0	2	14	0	0	0	2	48
8	1	0	0	0	0	1	9	3	2	1	4	3
9	0	0	2	0	2	0	9	0	0	0	1	0
10	3	1	0	8	1	2	1	2	1	0	0	2
11	2	1	0	4	1	0	0	1	0	0	0	0
12	1	1	0	0	2	0	4	0	0	5	4	1
13	1	0	5	1	0	3	16	1	0	5	1	0
14	7	1	1	2	0	1	20	37	0	1	0	0
15	11	0	0	0	0	2	0	2	8	0	0	5
16	12	4	9	0	0	0	2	1	3	0	0	2
17	2	0	0	0	0	0	0	1	0	0	0	12
18	10	2	2	2	0	4	0	1	4	0	0	1
19	1	2	6	2	12	0	2	1	0	0	0	2
20	0	0	0	4	14	0	0	4	0	0	0	2
21	0	8	0	0	11	0	0	1	1	2	7	2
22	1	12	0	0	1	5	0	1	1	0	4	1
23	0	6	1	0	0	4	1	1	0	0	2	1
24	2	11	2	0	0	4	1	1	2	0	4	1
25	0	1	0	0	1	1	5	1	2	1	2	2
26	2	3	1	0	1	0	1	1	0	1	0	1
27	0	9	1	0	2	8	1	3	1	19	0	2
28	2	1	5	0	0	13	0	3	3	6	0	2
29	2	2	3	3		1	0	1	1	2	2	1
30	0	1	1	7		3	4	1	0	16	1	0
31	1		5	10		2		2		4	2	
Monthly Total	81	68	53	55	63	62	111	99	34	63	45	130

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1974 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-73	Nov-73	Dec-73	Jan-74	Feb-74	Mar-74	Apr-74	May-74	June-74	July-74	Aug-74	Sept-74
1	3	0	0	0	1	3	1	0	0	0	0	0
2	2	0	0	3	0	5	0	1	0	0	0	0
3	0	1	2	0	0	0	0	1	0	0	2	1
4	0	0	0	0	1	4	0	0	0	1	0	0
5	7	0	2	0	3	0	5	0	0	1	0	1
6	0	0	2	0	2	0	1	0	0	0	0	0
7	1	1	0	0	6	10	0	0	1	0	0	0
8	3	1	1	1	1	7	5	0	0	0	2	0
9	2	0	0	0	4	0	8	0	0	0	0	0
10	0	0	3	0	3	1	2	0	0	2	0	5
11	2	9	0	0	2	0	2	0	0	0	0	28
12	2	2	2	0	2	0	5	3	3	2	0	25
13	8	0	0	0	6	0	9	8	0	0	0	4
14	0	0	0	0	2	0	11	5	0	3	0	19
15	0	0	0	3	2	0	3	2	1	0	0	37
16	0	0	2	2	0	0	7	0	2	0	0	16
17	23	0	7	3	0	0	1	2	0	0	0	14
18	5	0	15	13	2	3	1	0	6	1	0	6
19	0	0	18	1	0	1	0	0	0	1	0	3
20	1	0	3	0	0	0	4	3	2	2	0	9
21	1	0	2	4	4	0	2	0	2	12	0	2
22	0	1	0	0	0	0	2	0	1	2	0	1
23	0	2	2	0	10	1	2	0	1	0	0	9
24	0	2	0	2	1	0	6	0	6	0	1	23
25	1	2	3	2	1	0	1	0	7	0	0	2
26	0	0	9	1	0	0	0	0	0	0	0	3
27	1	1	22	0	0	2	0	1	0	0	9	1
28	7	0	5	0	1	0	1	0	0	0	5	0
29	0	2	23	1		0	0	0	0	4	0	0
30	1	0	1	0		0	0	0	0	0	0	0
31	0		3	0		1		0		0	0	
Monthly Total	70	24	127	36	54	38	79	26	32	31	19	209

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1975 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-74	Nov-74	Dec-74	Jan-75	Feb-75	Mar-75	Apr-75	May-75	June-75	July-75	Aug-75	Sept-75
1	1	4	2	7	0	28	1	2	3	1	0	0
2	1	17	3	0	1	2	1	1	1	0	0	0
3	1	6	3	0	0	2	0	2	0	0	1	0
4	2	1	0	1	0	1	1	0	1	1	0	0
5	0	1	1	0	0	0	2	1	0	0	4	4
6	1	1	5	0	0	0	1	1	1	0	0	2
7	7	2	10	0	0	0	0	3	1	0	0	3
8	1	3	0	0	0	0	2	0	1	0	2	4
9	1	5	2	0	0	0	1	4	0	0	0	1
10	0	6	0	0	1	10	0	30	0	0	0	14
11	0	0	0	0	0	0	0	5	0	0	0	13
12	0	3	2	0	0	0	1	0	0	0	1	3
13	4	2	1	0	0	1	0	2	0	0	5	0
14	3	6	3	0	0	0	1	0	0	0	5	0
15	0	10	2	0	2	1	6	2	0	0	5	1
16	0	0	2	0	2	0	1	1	0	0	1	0
17	3	0	2	4	0	0	10	0	0	0	0	9
18	3	1	5	8	6	2	4	0	0	0	1	9
19	12	0	5	3	5	0	0	2	2	0	0	7
20	5	0	3	2	4	2	0	0	4	1	2	13
21	3	16	1	3	18	0	0	2	0	0	0	6
22	0	28	0	3	6	0	8	0	2	1	0	0
23	29	1	2	1	22	0	0	0	0	1	0	0
24	23	5	3	3	9	0	0	1	0	2	2	0
25	8	0	4	2	40	0	5	2	0	0	0	15
26	1	0	1	5	19	3	3	1	0	0	1	26
27	8	9	4	0	3	4	3	0	0	0	1	1
28	1	12	0	0	0	6	0	0	1	0	0	12
29	11	6	0	7		1	0	0	2	2	0	16
30	0	3	0	0		0	2	0	1	0	0	0
31	32		0	1		1		0		1	0	
Monthly Total	161	148	66	50	138	64	53	62	20	10	31	159

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1976 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-75	Nov-75	Dec-75	Jan-76	Feb-76	Mar-76	Apr-76	May-76	June-76	July-76	Aug-76	Sept-76
1	1	0	1	1	2	0	5	3	0	0	0	2
2	4	0	1	1	0	7	14	1	1	0	2	6
3	5	0	0	1	8	4	16	5	3	0	0	0
4	2	0	0	1	0	1	3	2	0	2	0	4
5	3	0	1	0	4	1	2	0	0	0	2	0
6	0	0	0	1	9	2	0	1	0	0	0	0
7	0	0	0	0	0	1	2	1	0	0	0	62
8	0	0	0	0	3	1	4	0	0	0	2	7
9	2	0	0	0	0	1	2	0	0	0	0	2
10	1	3	0	0	0	0	1	2	0	0	0	0
11	4	0	0	0	0	0	0	2	0	0	0	1
12	2	0	0	0	0	0	0	1	0	0	1	18
13	4	4	0	0	0	12	5	2	0	0	3	21
14	10	1	0	0	0	1	7	2	0	0	2	17
15	3	0	7	0	1	1	0	0	0	0	0	22
16	1	0	20	0	0	3	0	0	9	0	0	3
17	1	0	20	6	0	0	0	1	6	2	2	48
18	1	0	19	9	1	2	6	3	0	0	5	18
19	1	1	5	13	0	0	3	1	0	0	0	1
20	2	2	6	3	0	0	1	1	0	1	3	64
21	2	0	8	5	1	0	1	1	0	0	0	28
22	0	0	13	4	0	0	0	1	2	2	0	16
23	16	0	3	1	0	0	0	1	0	1	0	2
24	2	0	3	1	0	2	2	0	0	0	4	36
25	0	0	9	6	0	4	8	0	0	3	9	16
26	1	0	3	0	0	0	22	0	0	0	71	2
27	0	0	8	2	0	1	13	0	0	2	15	5
28	4	1	3	9	0	4	9	0	0	0	3	21
29	0	0	1	25	0	1	1	1	0	0	3	2
30	0	1	6	7		1	1	0	0	0	0	2
31	0		1	0		0		0		0	1	
Monthly Total	72	13	138	96	29	50	128	32	21	13	128	426

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1977 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-76	Nov-76	Dec-76	Jan-77	Feb-77	Mar-77	Apr-77	May-77	June-77	July-77	Aug-77	Sept-77
1	0	--	--	--	--	1	0	1	0	0	0	0
2	2	--	--	--	--	3	2	1	0	0	0	0
3	14	--	--	--	--	7	1	0	0	2	0	0
4	4	--	--	--	--	2	12	0	9	1	7	0
5	4	--	--	--	--	4	10	1	0	3	3	0
6	2	--	--	--	--	0	2	2	2	0	7	9
7	2	--	--	--	--	0	0	0	4	0	27	17
8	2	--	--	--	--	0	0	1	0	0	9	1
9	1	--	--	--	--	0	3	2	1	0	13	5
10	0	--	--	--	--	2	6	0	0	0	9	5
11	0	--	--	--	--	4	3	3	1	0	0	0
12	2	--	--	--	--	0	3	0	0	0	5	4
13	0	--	--	--	--	3	3	0	0	1	3	0
14	2	--	--	--	--	1	13	0	0	5	0	3
15	0	--	--	--	0	0	2	0	0	3	2	11
16	10	--	--	--	9	10	0	0	4	0	0	9
17	--	--	--	--	--	6	0	8	6	0	1	0
18	--	--	--	--	--	0	0	18	1	0	0	2
19	--	--	--	--	--	0	8	2	0	0	0	0
20	--	--	--	--	--	0	0	2	0	0	0	23
21	--	--	--	--	--	0	0	0	0	1	0	17
22	--	--	--	--	--	0	0	0	0	0	3	1
23	--	--	--	--	0	4	0	0	0	0	1	0
24	--	--	--	--	0	0	1	2	0	2	1	0
25	--	--	--	--	0	0	0	0	0	0	1	0
26	--	--	--	--	1	0	3	0	0	4	0	0
27	--	--	--	--	1	0	0	0	0	1	1	6
28	--	--	--	--	1	0	0	0	0	0	0	8
29	--	--	--	--		0	3	6	1	0	0	6
30	--	--	--	--		2	0	0	0	3	0	0
31	--		--	--		2		0		0	1	
Monthly Total	N/A	N/A	N/A	N/A	N/A	51	75	49	29	26	94	127

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1978 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-77	Nov-77	Dec-77	Jan-78	Feb-78	Mar-78	Apr-78	May-78	June-78	July-78	Aug-78	Sept-78
1	0	1	0	0	1	0	0	--	--	--	--	--
2	0	0	0	0	0	0	1	--	--	--	--	--
3	0	0	0	0	0	0	0	--	--	--	--	--
4	1	1	0	0	0	0	1	--	--	--	--	--
5	0	0	0	0	1	0	0	--	--	--	--	--
6	4	2	0	0	10	0	2	--	--	--	--	--
7	0	0	0	0	6	7	0	--	--	--	--	--
8	8	0	0	4	17	5	1	--	--	--	--	--
9	15	0	0	2	0	5	1	--	--	--	--	--
10	27	0	0	3	10	0	0	--	--	--	--	--
11	20	0	1	1	10	4	0	--	--	--	--	--
12	8	5	0	2	15	7	0	--	--	--	--	--
13	1	2	0	1	9	3	0	--	--	--	--	--
14	7	0	7	1	4	5	0	--	--	--	--	--
15	4	0	0	1	2	11	0	--	--	--	--	--
16	2	2	1	0	2	0	1	--	--	--	--	--
17	6	0	2	0	0	4	0	--	--	--	--	--
18	10	0	0	6	10	0	0	--	--	--	--	--
19	0	0	0	8	43	0	0	--	--	--	--	--
20	8	0	0	6	19	2	0	--	--	--	--	--
21	8	0	1	0	12	0	0	--	--	--	--	--
22	10	0	1	7	4	2	--	--	--	--	--	--
23	6	0	2	4	26	1	--	--	--	--	--	--
24	1	0	2	1	17	0	--	--	--	--	--	--
25	1	0	1	1	43	0	--	--	--	--	--	--
26	19	0	2	6	1	1	--	--	--	--	--	--
27	0	0	3	0	0	2	--	--	--	--	--	--
28	2	0	0	0	14	1	--	--	--	--	--	0
29	9	0	0	0		0	--	--	--	--	--	0
30	2	0	2	0		2	--	--	--	--	--	3
31	1		0	0		0		--		--	--	
Monthly Total	180	13	25	54	276	62	N/A	N/A	N/A	N/A	N/A	N/A

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1979 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-78	Nov-78	Dec-78	Jan-79	Feb-79	Mar-79	Apr-79	May-79	June-79	July-79	Aug-79	Sept-79
1	1	2	4	0	3	1	3	0	4	0	2	0
2	0	1	7	0	9	0	0	0	1	0	0	0
3	0	0	1	0	2	0	6	0	1	6	0	1
4	3	1	1	0	0	3	4	2	2	0	0	0
5	42	8	2	0	2	2	1	1	0	0	0	0
6	18	4	1	0	0	12	5	0	0	3	0	0
7	6	0	0	1	1	3	7	2	0	0	1	0
8	41	0	4	1	0	4	2	2	0	3	2	1
9	6	0	1	2	0	1	0	0	0	1	42	0
10	0	0	3	1	0	3	1	2	0	0	8	2
11	0	0	0	0	0	0	1	0	0	7	0	1
12	5	1	12	0	0	10	0	0	0	11	0	15
13	2	5	4	2	0	8	2	0	0	0	6	18
14	0	0	19	4	0	6	0	0	0	15	5	13
15	0	0	4	9	0	1	0	0	0	9	16	5
16	8	1	1	11	0	3	0	1	1	1	13	3
17	21	0	3	8	0	0	0	1	0	4	1	2
18	9	0	0	4	0	6	0	1	0	0	1	6
19	1	0	1	0	0	4	0	3	0	0	0	22
20	3	0	2	1	0	2	2	0	0	0	0	14
21	4	11	3	18	0	7	0	0	0	3	1	3
22	2	1	5	1	0	1	0	1	0	0	0	34
23	4	1	0	1	0	0	0	3	0	0	0	17
24	13	0	2	6	0	0	0	0	3	1	0	6
25	5	6	1	3	5	0	0	0	13	1	0	8
26	4	10	0	2	1	0	2	0	4	1	0	8
27	1	11	0	0	1	2	0	0	0	0	0	31
28	1	1	1	1	1	2	0	0	10	0	1	1
29	10	3	2	0		0	0	0	2	0	12	3
30	8	1	3	0		0	0	0	1	3	1	62
31	1		5	5		0		0		1	3	
Monthly Total	219	68	92	81	25	81	36	19	42	70	115	276

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1980 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-79	Nov-79	Dec-79	Jan-80	Feb-80	Mar-80	Apr-80	May-80	June-80	July-80	Aug-80	Sept-80
1	33	0	1	0	0	4	19	0	0	0	0	0
2	37	0	6	0	3	0	9	1	0	0	0	10
3	12	4	5	0	12	0	5	4	0	1	2	2
4	23	0	2	0	45	0	2	0	0	0	0	0
5	14	0	10	0	17	4	1	0	0	0	0	1
6	2	0	5	0	6	0	1	1	0	0	0	0
7	4	3	2	0	13	6	3	0	0	0	4	7
8	29	3	3	0	0	5	5	0	0	0	3	35
9	18	4	0	0	51	3	0	2	0	0	5	1
10	7	3	10	0	3	0	0	4	0	3	3	0
11	23	14	10	0	33	7	0	0	0	17	1	0
12	4	7	2	0	9	0	4	0	0	1	8	0
13	0	4	0	0	12	6	10	0	0	0	1	15
14	1	1	0	0	0	3	0	0	0	0	5	7
15	10	18	0	0	0	0	0	0	0	2	1	4
16	11	15	0	1	0	0	0	4	0	0	7	3
17	1	5	0	12	0	0	0	4	5	3	0	0
18	0	2	8	85	6	0	1	17	6	0	1	0
19	0	8	0	47	5	0	0	24	1	0	0	0
20	2	13	0	47	0	0	3	1	14	0	1	0
21	0	9	0	14	0	0	36	4	0	0	13	0
22	0	8	0	31	8	0	8	0	0	0	0	1
23	7	4	0	16	25	0	9	1	0	0	0	2
24	2	7	17	0	3	6	1	0	0	0	0	4
25	3	3	16	0	0	2	0	0	4	0	0	3
26	0	4	11	0	16	4	4	2	1	0	0	55
27	1	31	10	0	6	1	2	0	0	0	0	9
28	4	93	14	0	0	3	5	1	5	0	3	2
29	4	20	14	0	3	22	0	3	9	24	0	37
30	28	30	7	0		27	4	1	0	3	2	15
31	12		0	0		39		0		1	3	
Monthly Total	292	313	153	253	276	142	132	74	45	55	63	213

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1981 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-80	Nov-80	Dec-80	Jan-81	Feb-81	Mar-81	Apr-81	May-81	June-81	July-81	Aug-81	Sept-81
1	14	0	2	2	10	14	0	0	16	3	17	0
2	2	0	2	2	8	6	0	0	1	14	16	1
3	1	5	4	24	3	1	0	1	0	7	0	0
4	0	3	3	3	0	9	2	0	0	1	0	0
5	17	0	0	0	0	9	0	0	2	0	10	2
6	23	2	0	5	0	5	0	0	0	2	29	19
7	11	0	0	7	14	2	0	0	1	0	1	1
8	9	2	0	4	0	1	0	0	17	2	3	1
9	2	0	0	8	3	7	0	0	1	3	4	0
10	0	0	1	9	2	9	0	2	0	10	4	1
11	0	5	4	2	2	21	0	0	0	1	2	0
12	0	6	1	0	0	14	0	0	0	0	18	9
13	0	9	0	19	0	9	0	0	0	0	2	2
14	8	3	0	34	4	26	0	0	0	2	3	5
15	11	6	1	8	0	40	0	0	2	12	4	7
16	2	3	0	6	9	1	0	0	0	6	2	55
17	3	4	0	11	0	14	0	0	0	1	0	8
18	14	1	0	5	10	13	1	0	1	0	5	37
19	16	15	0	9	10	27	1	1	1	6	16	3
20	14	0	0	0	0	0	2	3	1	0	45	0
21	8	0	0	42	10	2	0	0	5	0	40	2
22	41	6	0	2	10	0	0	0	0	0	0	0
23	14	9	0	11	10	0	0	0	0	5	0	0
24	50	7	0	21	10	0	0	0	0	2	0	0
25	4	2	0	6	10	0	2	0	0	2	0	0
26	5	4	0	11	10	0	0	0	0	0	0	0
27	0	7	0	1	10	2	0	1	2	0	0	2
28	1	1	0	1	11	3	0	0	0	2	0	0
29	0	0	0	13		0	0	0	2	0	0	8
30	8	0	5	10		0	0	0	3	0	0	0
31	0		11	4		2		10		2	0	
Monthly Total	278	100	34	280	156	237	8	18	55	83	221	163

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1982 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-81	Nov-81	Dec-81	Jan-82	Feb-82	Mar-82	Apr-82	May-82	June-82	July-82	Aug-82	Sept-82
1	0	0	9	0	1	0	0	0	0	1	0	0
2	1	5	4	0	3	0	1	0	0	1	0	0
3	9	7	0	0	6	0	0	1	0	0	0	0
4	3	2	0	0	8	0	0	0	0	12	0	0
5	0	1	2	20	0	0	0	0	1	0	2	19
6	0	0	0	0	1	0	0	0	0	0	1	35
7	1	12	0	0	0	0	0	3	2	0	7	4
8	3	3	10	0	0	0	0	0	0	0	6	2
9	2	23	0	0	1	1	0	0	0	4	2	3
10	0	14	2	0	1	1	0	0	14	0	1	5
11	4	14	0	0	2	0	0	3	2	0	10	0
12	0	6	8	0	0	1	1	7	4	1	0	2
13	0	2	6	0	0	1	1	0	0	0	0	30
14	1	0	1	2	0	1	0	0	0	0	0	8
15	1	3	2	0	5	0	2	0	0	5	6	28
16	1	0	13	0	0	0	0	0	0	2	0	13
17	0	0	21	0	0	0	4	0	1	3	1	3
18	1	0	8	0	0	9	3	0	3	0	0	18
19	1	1	1	0	0	2	1	1	2	0	0	6
20	35	0	3	0	0	3	8	1	0	0	0	6
21	3	0	1	0	0	3	5	0	1	1	0	11
22	2	0	0	1	0	2	0	0	0	0	0	3
23	0	4	0	1	0	2	0	1	0	2	0	3
24	0	0	1	0	0	0	0	0	0	0	0	0
25	0	7	1	0	0	2	2	0	0	0	0	0
26	0	1	4	0	0	2	5	0	0	0	0	0
27	2	4	0	0	0	0	10	0	0	0	0	1
28	10	1	1	1	0	0	8	0	12	1	0	0
29	8	3	2	1		0	3	0	5	16	4	4
30	8	13	0	1		2	0	0	4	0	2	3
31	3		0	1		0		0		0	0	
Monthly Total	99	126	100	28	28	32	54	17	51	49	42	207

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1983 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-82	Nov-82	Dec-82	Jan-83	Feb-83	Mar-83	Apr-83	May-83	June-83	July-83	Aug-83	Sept-83
1	1	10	4	4	13	2	0	0	2	2	0	0
2	0	4	0	1	9	0	0	3	0	0	0	0
3	2	5	0	1	6	0	2	2	2	0	0	0
4	0	11	0	0	13	0	15	5	0	0	6	0
5	2	3	2	0	18	0	21	0	0	1	13	0
6	1	1	12	0	0	0	1	1	0	2	3	0
7	4	0	6	0	1	0	1	0	0	1	1	0
8	4	3	7	0	0	0	2	0	0	13	5	0
9	1	2	6	0	0	0	0	0	3	11	3	0
10	3	1	19	5	4	0	0	0	3	1	0	0
11	4	3	0	1	0	0	0	0	3	15	0	0
12	5	10	3	4	0	0	1	0	1	3	1	0
13	7	11	9	0	0	0	2	0	0	0	3	0
14	4	4	14	1	0	0	6	0	0	0	4	0
15	2	1	7	0	0	1	1	0	0	0	5	0
16	2	1	10	11	0	0	0	0	0	0	0	0
17	6	3	1	4	0	0	1	0	0	0	1	0
18	0	0	1	7	0	0	2	0	0	0	0	0
19	4	0	1	4	0	1	0	0	0	1	0	4
20	3	0	5	7	2	0	2	0	0	0	1	4
21	2	0	2	3	0	0	0	1	0	1	8	8
22	2	1	3	0	2	0	3	8	0	0	0	0
23	0	1	0	1	0	0	0	0	0	5	2	0
24	0	2	0	7	2	0	0	0	0	2	1	4
25	0	1	0	0	1	0	0	0	0	0	5	0
26	0	1	5	2	4	3	0	0	2	0	20	1
27	0	0	6	1	0	1	0	0	1	0	0	0
28	6	2	27	5	3	4	0	0	1	0	0	0
29	3	3	10	1		0	0	0	8	0	0	5
30	3	5	3	3		0	0	11	2	0	0	1
31	0		2	4		0		18		0	0	
Monthly Total	71	89	165	77	78	12	60	49	28	58	82	27

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1984 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-83	Nov-83	Dec-83	Jan-84	Feb-84	Mar-84	Apr-84	May-84	June-84	July-84	Aug-84	Sept-84
1	2	4	4	0	0	0	4	1	0	2	0	0
2	2	13	0	0	0	2	2	5	0	2	0	0
3	0	2	2	2	4	7	0	0	0	0	0	0
4	0	1	0	5	6	1	1	5	0	0	0	0
5	0	1	0	2	5	7	3	1	0	0	2	0
6	0	0	0	0	3	2	0	2	10	0	0	0
7	0	15	1	0	4	0	0	0	0	0	0	0
8	0	5	13	2	1	0	0	0	0	6	0	0
9	13	5	1	0	0	0	0	0	1	2	0	0
10	11	13	2	7	0	2	1	0	0	3	0	0
11	14	2	0	17	4	0	3	0	0	9	6	0
12	0	2	0	56	0	1	0	1	0	0	0	0
13	0	1	1	13	1	6	4	0	0	1	0	22
14	0	0	2	17	4	0	1	0	0	2	0	69
15	0	2	0	4	2	0	2	1	3	0	0	15
16	0	1	0	1	10	0	2	0	5	2	0	1
17	1	2	0	1	12	0	2	0	1	3	4	0
18	2	0	0	3	23	0	6	0	0	0	7	0
19	0	1	1	2	3	0	1	0	0	0	17	7
20	0	2	0	0	5	0	0	0	0	0	2	4
21	4	14	0	0	0	0	11	0	0	0	0	0
22	2	4	0	1	1	0	2	0	0	0	0	0
23	4	1	11	3	1	0	0	0	2	1	0	0
24	1	4	3	0	1	0	2	0	1	0	9	1
25	2	0	2	2	0	0	0	0	6	0	6	1
26	1	0	0	0	0	0	1	0	0	0	2	0
27	9	2	0	2	0	2	0	0	0	0	0	0
28	10	29	2	3	3	0	0	0	1	1	0	17
29	4	9	1	21	0	6	2	0	1	0	0	69
30	3	3	0	2		8	0	0	0	0	0	34
31	6		0	4		0		0		0	0	
Monthly Total	91	138	46	170	93	44	50	16	31	34	55	240

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1985 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-84	Nov-84	Dec-84	Jan-85	Feb-85	Mar-85	Apr-85	May-85	June-85	July-85	Aug-85	Sept-85
1	37	0	0	2	1	2	3	2	2	0	0	5
2	8	1	5	0	1	0	0	0	5	0	0	0
3	0	1	4	3	8	0	0	0	30	2	0	1
4	0	0	19	3	2	0	0	0	5	1	0	0
5	5	0	26	0	2	0	0	0	2	0	0	0
6	23	1	0	2	4	4	0	0	0	0	0	0
7	3	2	3	10	0	8	0	1	3	2	1	0
8	25	0	13	19	2	1	6	6	2	0	1	1
9	2	0	0	7	3	4	5	1	0	0	4	2
10	0	0	0	23	0	17	2	0	0	0	0	4
11	4	0	0	9	0	5	0	1	0	2	0	0
12	5	0	0	4	0	11	0	0	0	3	21	0
13	0	0	0	1	0	4	0	3	0	0	11	0
14	0	1	1	6	1	3	2	4	0	0	1	15
15	1	0	0	3	0	3	4	0	0	0	0	1
16	2	0	0	4	0	5	13	0	0	0	2	1
17	0	0	0	11	0	15	19	0	3	0	0	1
18	0	0	0	5	0	24	0	1	0	0	0	3
19	2	0	3	4	0	7	0	0	0	0	5	0
20	0	18	1	1	0	10	0	1	0	1	9	5
21	2	2	0	5	2	10	0	0	0	3	10	0
22	8	5	0	4	0	15	0	0	0	1	0	1
23	3	0	5	13	0	29	0	0	0	1	0	0
24	0	1	0	12	0	2	0	0	1	0	0	7
25	0	0	2	4	2	2	0	0	0	0	2	0
26	1	0	0	0	5	2	0	0	0	1	0	6
27	0	0	2	1	2	3	0	0	0	1	0	46
28	0	0	0	0	5	0	0	0	0	0	0	0
29	0	0	7	15		0	2	0	0	0	3	25
30	0	0	8	5		0	0	0	0	0	0	0
31	0		17	5		3		5		1	0	
Monthly Total	131	32	116	181	40	189	56	25	53	19	70	124

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1986 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-85	Nov-85	Dec-85	Jan-86	Feb-86	Mar-86	Apr-86	May-86	June-86	July-86	Aug-86	Sept-86
1	2	0	5	0	5	0	0	0	2	--	--	0
2	0	0	2	0	3	0	0	0	0	--	--	2
3	1	0	0	16	2	0	0	1	0	--	--	2
4	0	0	0	61	0	0	1	0	0	--	--	0
5	0	0	1	8	0	0	0	0	0	--	--	0
6	1	0	0	3	14	0	5	0	3	--	--	0
7	1	0	1	1	20	0	2	0	17	--	--	33
8	4	0	6	2	27	0	0	1	1	--	--	2
9	2	0	17	7	12	0	0	1	0	--	--	2
10	3	0	9	6	5	0	0	5	1	--	--	0
11	0	2	6	12	6	0	0	3	2	--	--	0
12	0	4	4	12	0	0	0	0	0	--	--	0
13	0	1	4	7	0	0	0	0	0	--	--	0
14	1	0	0	8	0	0	0	1	0	--	--	0
15	0	0	1	5	1	0	0	3	--	--	--	0
16	4	0	2	7	0	0	0	2	--	--	--	0
17	0	0	2	1	5	0	0	0	--	--	--	0
18	2	0	13	1	4	0	0	1	--	--	--	0
19	0	0	6	1	1	0	0	0	--	--	--	1
20	0	0	3	3	0	0	0	0	--	--	--	11
21	1	0	5	2	0	0	2	0	--	--	--	0
22	0	0	12	0	0	0	6	0	--	--	0	8
23	1	0	48	0	0	0	1	0	--	--	0	0
24	0	0	11	0	0	0	0	0	--	--	0	0
25	2	1	1	1	2	0	0	0	--	--	2	0
26	0	9	0	5	5	7	0	0	--	--	52	0
27	0	9	0	1	1	2	0	0	--	--	4	0
28	1	3	1	2	0	2	0	0	--	--	1	0
29	1	1	0	0		1	0	0	--	--	1	0
30	0	1	0	0		1	1	0	--	--	0	1
31	1		9	3		0		0		--	1	
Monthly Total	28	31	169	175	113	13	18	18	N/A	N/A	N/A	62

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1987 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-86	Nov-86	Dec-86	Jan-87	Feb-87	Mar-87	Apr-87	May-87	June-87	July-87	Aug-87	Sept-87
1	2	0	5	3	6	4	0	1	0	1	0	2
2	0	19	3	1	9	0	0	1	1	0	0	0
3	1	3	3	4	6	1	0	0	1	0	0	8
4	3	2	8	0	21	7	0	0	0	0	4	9
5	0	1	4	0	6	4	9	1	0	0	2	1
6	0	1	2	11	10	0	0	0	5	0	0	9
7	0	0	2	8	1	0	0	0	12	1	0	10
8	0	3	24	2	5	0	0	1	7	0	0	5
9	15	3	4	11	16	0	0	1	3	0	0	0
10	72	0	25	7	2	0	0	0	3	0	0	3
11	19	0	0	0	0	0	0	0	1	2	2	1
12	36	0	10	0	1	0	0	0	4	4	0	5
13	30	2	2	8	0	0	0	0	0	1	0	1
14	14	3	0	0	0	0	7	0	51	2	2	0
15	5	2	13	29	0	0	3	0	0	0	2	0
16	0	0	10	23	1	0	3	0	6	4	0	0
17	1	0	4	13	3	0	2	0	4	2	0	5
18	0	3	7	29	0	0	0	0	1	1	1	13
19	1	0	31	14	4	0	5	0	1	0	0	14
20	5	0	7	14	4	0	0	0	8	0	0	1
21	15	4	2	47	13	10	3	0	8	0	0	0
22	0	1	0	35	1	24	4	3	11	5	0	28
23	1	0	1	1	2	5	3	0	2	2	0	54
24	0	2	0	0	3	11	0	0	0	0	0	1
25	0	3	1	0	4	7	4	0	0	0	0	7
26	0	3	0	0	0	0	5	0	0	0	0	9
27	0	8	0	0	0	2	0	2	1	0	0	4
28	3	16	0	1	2	0	0	3	0	0	0	0
29	0	6	1	0		1	2	0	4	0	0	1
30	0	5	9	0		11	2	0	1	6	1	16
31	1		0	0		1		0		0	3	
Monthly Total	224	90	178	261	120	88	52	13	135	31	17	207

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1988 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-87	Nov-87	Dec-87	Jan-88	Feb-88	Mar-88	Apr-88	May-88	June-88	July-88	Aug-88	Sept-88
1	0	5	2	0	3	7	0	0	0	0	2	1
2	22	0	1	0	2	15	2	0	0	0	4	0
3	0	0	2	0	4	11	0	0	0	0	1	0
4	2	0	2	0	0	0	8	1	0	0	0	0
5	0	2	0	0	0	2	3	0	0	0	2	0
6	0	0	4	5	20	4	1	0	0	0	8	0
7	0	1	1	8	2	6	1	0	0	0	1	0
8	21	0	9	1	5	0	0	0	0	0	0	2
9	14	0	10	2	0	27	5	0	0	0	0	0
10	0	3	5	1	0	41	3	0	0	0	2	2
11	2	0	3	2	0	34	35	2	0	0	12	2
12	0	12	2	3	1	18	18	0	0	0	1	0
13	1	9	0	6	3	8	5	0	0	0	1	0
14	1	3	1	8	4	1	7	0	0	0	0	53
15	0	0	0	0	2	15	15	0	0	0	0	38
16	1	7	0	1	2	6	13	1	0	0	0	18
17	1	7	3	1	2	1	17	0	0	0	0	19
18	0	29	0	6	15	10	6	0	4	0	11	3
19	11	0	12	2	6	4	5	2	2	0	4	13
20	6	1	9	10	2	1	0	0	1	0	4	16
21	19	2	2	18	4	1	0	0	0	4	44	4
22	39	2	1	17	3	0	0	0	0	0	4	1
23	22	1	2	5	7	0	1	0	0	0	1	2
24	5	1	26	3	7	0	2	0	1	0	0	3
25	0	0	5	2	24	0	3	0	0	2	23	0
26	1	0	1	0	13	0	10	0	4	0	7	0
27	2	2	0	0	14	0	7	0	3	0	4	1
28	0	2	0	0	12	1	6	0	2	2	1	0
29	0	0	0	0	5	0	0	1	0	0	4	0
30	2	8	1	0		0	0	0	1	0	4	0
31	0		1	0		0		2		0	15	
Monthly Total	172	97	105	101	162	213	173	9	18	8	160	178

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1989 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-88	Nov-88	Dec-88	Jan-89	Feb-89	Mar-89	Apr-89	May-89	June-89	July-89	Aug-89	Sept-89
1	0	0	1	2	0	0	1	0	0	0	3	63
2	12	0	9	1	0	0	1	0	5	0	8	10
3	7	0	10	0	0	1	0	3	4	1	0	3
4	9	1	3	0	0	1	0	0	0	0	0	0
5	35	0	0	0	0	0	0	0	4	0	0	0
6	12	0	0	7	0	0	1	0	0	0	0	3
7	4	0	21	0	0	0	1	0	0	0	5	3
8	0	0	6	0	0	0	1	0	0	0	0	1
9	0	0	4	1	0	1	0	0	0	0	0	4
10	1	1	8	1	0	0	2	0	2	0	0	1
11	5	0	20	14	0	0	0	4	2	0	0	3
12	0	2	8	5	0	0	0	0	0	0	0	1
13	1	0	7	1	0	0	1	0	2	0	2	0
14	1	2	24	3	0	0	0	0	1	0	1	2
15	0	0	8	3	0	0	0	1	8	0	0	1
16	0	0	30	0	0	0	1	1	4	0	1	1
17	0	5	1	2	0	0	1	2	0	0	0	11
18	0	0	10	0	0	1	0	3	0	0	0	2
19	0	1	5	4	2	1	0	2	0	1	0	5
20	0	12	1	2	0	0	0	0	0	3	0	0
21	0	7	0	0	0	0	0	4	0	2	0	2
22	0	2	20	0	0	2	0	1	0	0	0	7
23	0	2	1	4	1	2	0	2	6	5	3	21
24	0	0	1	5	0	0	0	2	4	6	0	3
25	0	0	0	0	0	0	1	1	3	2	40	5
26	0	2	0	4	1	1	0	1	0	0	23	0
27	0	0	3	0	0	1	4	0	0	0	2	2
28	2	0	3	0	0	0	1	0	0	1	10	0
29	2	4	1	0		0	2	2	0	6	2	0
30	0	1	1	0		0	1	1	0	9	2	2
31	1		4	0		0		2		1	3	
Monthly Total	92	42	210	59	4	11	19	32	45	37	105	156

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1990 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-89	Nov-89	Dec-89	Jan-90	Feb-90	Mar-90	Apr-90	May-90	June-90	July-90	Aug-90	Sept-90
1	12	0	7	0	--	--	0	1	2	1	1	0
2	1	0	8	2	--	--	2	1	0	0	2	0
3	4	2	6	1	--	--	4	0	0	0	0	7
4	12	0	2	0	--	--	17	0	0	0	4	0
5	23	0	8	2	--	--	1	0	0	0	2	2
6	36	1	8	1	--	--	0	1	0	0	1	3
7	13	0	11	0	--	--	0	0	1	2	1	1
8	0	0	0	3	--	--	0	0	2	1	5	0
9	6	0	11	0	--	--	0	0	0	28	2	0
10	0	0	12	3	--	--	2	0	0	4	5	1
11	0	0	7	4	--	--	0	0	0	1	1	6
12	0	0	4	6	--	--	0	0	0	0	0	9
13	0	0	4	6	--	--	0	0	2	0	0	23
14	0	0	2	0	--	--	0	0	6	0	0	17
15	28	0	5	0	--	--	0	0	7	0	2	1
16	9	1	0	6	--	--	0	0	2	0	0	17
17	3	2	4	3	--	--	1	0	1	0	2	20
18	1	1	0	10	--	0	0	0	1	0	2	3
19	7	0	1	5	--	0	0	0	0	0	12	23
20	1	1	0	41	--	0	1	0	3	0	4	16
21	1	20	0	7	--	0	0	1	2	0	2	2
22	0	19	1	5	--	0	0	0	0	0	0	28
23	8	4	2	3	--	0	0	1	6	0	2	1
24	1	2	7	5	--	0	0	0	0	3	4	0
25	0	0	2	1	--	0	0	1	0	17	0	0
26	1	0	4	0	--	0	0	0	1	4	1	0
27	0	1	1	0	--	1	0	0	0	19	4	4
28	3	1	6	0	--	8	0	7	0	6	1	0
29	0	0	4	0		11	0	2	0	3	0	2
30	1	2	1	0		7	0	1	0	0	0	2
31	0		3			4		0		3	0	
Monthly Total	171	57	131	114	N/A	N/A	28	16	36	92	60	188

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1991 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-90	Nov-90	Dec-90	Jan-91	Feb-91	Mar-91	Apr-91	May-91	June-91	July-91	Aug-91	Sept-91
1	0	0	0	0	0	0	1	0	3	1	4	0
2	1	0	3	0	2	0	14	2	2	0	5	1
3	1	0	2	0	1	0	7	1	1	0	0	1
4	0	1	1	0	3	0	2	2	0	0	2	18
5	1	2	14	0	0	27	8	4	0	1	0	0
6	0	0	0	0	3	0	1	1	2	1	0	5
7	4	0	2	0	1	4	1	1	0	1	0	1
8	7	0	2	0	4	0	3	1	1	2	0	21
9	0	1	1	0	7	1	4	10	0	8	2	7
10	2	0	4	0	4	0	3	5	0	0	1	9
11	8	0	0	0	2	0	0	0	0	3	2	2
12	0	0	2	0	5	0	0	9	0	5	0	0
13	0	0	3	2	4	1	0	0	0	0	4	0
14	1	2	1	1	0	5	0	0	0	0	1	0
15	0	3	0	2	0	0	3	2	0	0	1	0
16	0	1	0	1	0	6	1	1	1	4	0	0
17	0	7	5	4	0	0	1	0	1	1	6	33
18	0	7	0	6	4	3	0	1	3	0	2	4
19	14	0	0	15	2	3	2	1	0	0	0	0
20	3	1	0	10	0	0	0	0	0	0	0	0
21	2	0	0	2	0	1	0	0	0	0	5	0
22	5	0	2	1	0	0	2	0	0	4	1	0
23	17	0	0	0	0	0	2	0	2	8	1	15
24	2	0	0	8	0	0	1	0	2	2	10	46
25	3	2	7	20	0	0	2	0	0	1	0	6
26	1	1	4	2	0	2	2	0	0	0	0	1
27	1	0	2	0	0	2	2	0	0	0	4	34
28	7	0	2	2	0	8	2	1	0	1	0	1
29	1	0	1	0		6	10	3	0	2	0	7
30	0	0	3	0		1	11	1	0	0	0	4
31	1		0	0		2		0		44	1	
Monthly Total	82	28	61	76	42	72	85	46	18	89	52	216

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1992 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-91	Nov-91	Dec-91	Jan-92	Feb-92	Mar-92	Apr-92	May-92	June-92	July-92	Aug-92	Sept-92
1	10	1	8	22	0	3	3	3	0	0	1	1
2	0	0	2	0	1	2	1	1	2	0	2	5
3	1	0	1	1	5	0	3	0	0	0	2	0
4	8	2	0	1	0	2	0	0	0	2	17	0
5	0	5	3	0	0	0	0	0	0	2	15	0
6	0	7	1	5	6	0	0	3	0	0	5	0
7	0	0	4	7	0	0	0	0	0	0	1	0
8	1	0	3	12	0	13	0	3	0	0	0	0
9	0	0	4	5	0	16	0	0	0	0	2	0
10	0	0	4	6	1	0	0	0	0	0	1	0
11	0	0	0	1	1	0	0	0	0	0	0	0
12	0	0	0	3	2	2	0	0	0	5	9	0
13	0	0	0	0	0	1	1	0	0	0	13	0
14	0	0	20	4	0	0	6	0	0	2	2	0
15	3	0	8	4	0	2	5	1	2	1	2	0
16	2	0	20	14	2	3	1	0	1	0	4	0
17	0	0	7	15	0	1	0	0	3	0	1	0
18	0	0	0	25	0	3	7	0	1	0	0	1
19	0	3	2	3	0	26	2	0	0	0	0	5
20	3	0	9	3	0	8	0	0	0	1	0	0
21	2	4	0	0	0	5	1	0	1	3	2	0
22	0	0	7	0	0	0	0	0	1	1	0	0
23	0	4	0	5	0	6	0	0	0	10	22	0
24	0	1	4	0	12	29	0	0	7	0	13	0
25	0	3	14	0	5	3	0	1	0	0	14	0
26	1	2	2	2	0	4	0	2	2	1	6	0
27	0	0	10	4	7	3	1	0	0	1	2	0
28	0	2	1	3	5	0	2	0	1	21	1	1
29	0	1	3	2	1	0	0	1	1	3	0	0
30	1	0	1	1		2	2	1	0	1	6	0
31	0		1	2		0		0		0	2	
Monthly Total	32	35	139	150	48	134	35	16	22	54	145	13

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1993 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-92	Nov-92	Dec-92	Jan-93	Feb-93	Mar-93	Apr-93	May-93	June-93	July-93	Aug-93	Sept-93
1	6	0	8	3	0	2	13	0	0	1	1	8
2	4	0	8	5	0	2	4	0	2	4	0	6
3	0	4	8	0	0	0	6	0	0	3	0	3
4	2	2	0	0	0	2	0	1	0	2	1	2
5	0	2	0	0	0	2	0	0	0	4	0	13
6	37	1	1	0	7	7	0	2	7	0	0	13
7	6	8	1	0	1	8	11	0	0	1	0	4
8	0	16	2	2	1	3	2	1	4	0	0	0
9	0	15	3	0	11	3	0	1	0	0	0	0
10	1	1	4	0	1	2	4	2	0	0	0	2
11	0	11	2	1	0	1	1	0	1	0	0	0
12	0	1	3	0	2	0	4	0	0	0	1	4
13	0	0	0	0	0	5	0	0	0	0	1	0
14	0	5	2	0	14	2	3	0	0	0	16	1
15	0	3	3	2	19	1	4	0	0	0	9	1
16	0	0	0	5	10	0	12	0	0	0	7	38
17	0	1	0	24	0	0	2	0	0	0	1	1
18	0	0	0	3	1	0	7	0	0	0	2	0
19	0	1	1	2	0	0	0	0	0	0	24	0
20	3	1	0	2	1	0	11	0	0	1	18	36
21	1	0	1	0	0	0	2	0	1	1	6	1
22	1	16	0	0	1	0	0	1	0	0	3	0
23	0	17	0	0	0	1	0	0	0	1	0	0
24	2	7	0	0	0	1	0	0	0	0	0	0
25	10	6	0	2	10	0	0	2	1	0	0	0
26	20	1	16	5	4	0	1	0	0	3	0	0
27	3	11	0	5	0	3	1	0	0	0	0	2
28	1	17	0	2	0	8	2	0	0	0	0	28
29	3	4	0	1		22	1	0	0	0	6	0
30	1	1	1	4		0	0	0	0	0	18	3
31	1		3	1		21		0		1	9	
Monthly Total	102	152	67	69	83	96	91	10	16	22	123	166

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 5. Daily and monthly precipitation catch at 990 meters altitude, Wolverine Glacier Basin, 1994 hydrologic year

[Data in millimeters; monthly total is referenced as "N/A" if more than 9 records are missing; (--) record missing]

Day	Oct-93	Nov-93	Dec-93	Jan-94	Feb-94	Mar-94	Apr-94	May-94	June-94	July-94	Aug-94	Sept-94
1	9	1	--	--	--	0	0	0	0	0	0	1
2	0	1	--	--	--	6	0	4	0	3	0	0
3	1	0	--	--	--	5	2	1	0	0	0	0
4	0	2	--	--	0	4	0	4	0	0	0	0
5	0	0	--	--	1	0	4	0	0	7	0	0
6	13	3	--	--	1	0	0	0	0	0	0	0
7	26	1	--	--	0	0	0	0	0	0	1	0
8	9	0	--	--	2	7	0	1	0	0	0	2
9	21	6	--	--	0	4	0	2	0	5	0	0
10	0	0	--	--	2	5	2	0	0	0	0	2
11	1	1	--	--	0	5	1	1	0	0	0	2
12	1	3	--	--	0	0	1	1	0	0	0	0
13	0	2	--	--	0	1	3	0	0	0	0	0
14	2	2	--	--	0	0	3	3	0	0	0	53
15	4	1	--	--	0	6	3	0	0	0	1	38
16	2	0	--	--	0	6	2	0	1	0	1	18
17	2	1	--	--	0	2	0	0	0	3	0	19
18	1	2	--	--	0	2	0	3	3	7	0	3
19	1	1	--	--	2	2	0	0	0	1	0	13
20	0	0	--	--	2	0	0	2	0	2	1	16
21	0	--	--	--	0	0	1	0	12	1	0	4
22	1	--	--	--	0	0	0	7	0	0	0	1
23	1	--	--	--	0	0	2	8	0	0	0	2
24	0	--	--	--	0	5	0	2	10	0	0	3
25	0	--	--	--	0	7	0	0	4	1	4	0
26	6	--	--	--	0	15	1	0	2	3	12	0
27	0	--	--	--	0	2	3	0	1	0	5	1
28	10	--	--	--	0	1	0	5	0	4	0	0
29	20	--	--	--		0	0	0	0	0	3	0
30	2	--	--	--		0	1	3	0	0	0	0
31	0		--	--		2		0		0	0	
Monthly Total	133	N/A	N/A	N/A	10	87	29	47	33	37	28	178

Note: Gage catch may not equal actual precipitation because of errors caused by wind.

Table 6. Dates of recorded precipitation catch that may include precipitation from previous days, Wolverine Glacier basin, 1967-94 hydrologic years

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1967	---	---	---	---	---	---	---	---	10	---	12	---
1968	---	---	---	---	---	---	---	---	---	---	21	---
1969	---	2, 3, 6, 8	---	---	11, 18, 21,	---	12	---	---	---	---	---
	---	---	---	---	23	---	---	---	---	---	---	---
1970	18	2, 25, 26,	---	---	---	---	---	---	---	---	---	---
	---	28	---	---	---	---	---	---	---	---	---	---
1971	13	28	9	---	6-9, 17, 20	11, 16, 17	3, 14	21, 28	---	---	---	---
1972	---	18	---	---	---	---	---	---	---	---	---	---
1973	18	22	4	---	1, 20, 21	28	---	---	---	---	---	---
1974	---	---	18, 19,	16-18	---	---	14, 16	---	---	---	---	---
	---	---	27-29	---	---	---	---	---	---	---	---	---
1975	23-25, 31	2, 22, 28,	7, 9, 18,	18, 22	21, 23, 25,	1, 10	---	---	---	---	---	---
	---	29	19	---	26	---	---	---	---	---	---	---
1976	14, 21, 23	---	19	---	---	---	---	---	---	---	---	15
1977	---	---	---	---	---	3, 16	14	---	---	---	---	---
1978	---	---	---	---	19, 23, 25	---	---	---	---	---	---	---
1979	---	---	13, 14	17, 24, 31	---	14, 15	---	---	---	---	---	---
1980	31	3, 11, 21,	---	---	4, 5, 9-11,	---	19	---	---	---	---	---
	---	27, 28	---	---	26	---	---	---	---	---	---	---
1981	---	23, 27	---	3, 7, 10-14,	7, 27	5, 6, 14,	---	---	---	---	---	---
	---	---	---	21, 26, 29	---	15, 18, 19	---	---	---	---	---	---
1982	---	---	---	---	---	---	---	---	---	---	---	---
1983	---	13	9, 10, 14,	24	1, 3-5, 20	---	---	---	---	---	---	---
	---	---	16, 28	---	---	---	---	---	---	---	---	---
1984	11	10	---	11-15	11	---	---	---	---	---	---	---
1985	---	---	5, 6	8, 10, 18,	---	18, 20, 22,	---	---	---	---	27	29
	---	---	---	24, 29	---	23	---	---	---	---	---	---
1986	---	28	18, 23	4, 5, 12, 16	7-11	---	---	---	---	---	---	---
	---	---	---	---	---	---	---	---	---	---	---	---
1987	---	28	4, 8, 9, 19	9, 16, 27	21	22	---	---	---	---	---	---
1988	22	18	6, 9, 30	20-22	8, 18, 19,	2, 9, 10	11-13,	---	---	---	---	---
	---	---	---	---	25, 26, 28	---	17, 18	---	---	---	---	---
1989	---	20, 21, 25	3, 7, 9,	12, 23	---	---	---	---	---	---	---	---
	---	---	11-16, 22	---	---	---	---	---	---	---	---	---
1990	15	21, 22	1, 11, 13,	18, 20, 24	---	---	---	---	---	---	---	---
	---	---	15, 31	---	---	---	---	---	---	---	---	---
1991	23	---	17	24	12	29	2, 5, 30	4, 12	---	---	---	17, 18
1992	---	---	16, 20	18, 26	5, 6	8, 19, 24	---	---	---	---	---	---
1993	---	9, 11, 14,	3, 26	---	8, 9	---	6, 19	---	---	---	---	---
	---	28	---	---	---	---	---	---	---	---	---	---
1994	26	---	3	---	---	---	---	---	---	---	---	---

Table 7. Air temperature calibration data and average temperature offset, September 1981-January 1995
[Data in degrees Celsius]

Date of observation	Chart pen position	Calibration (1) temperature	Regression predicted (2) temperature	Temperature (1-2) residuals	Average temperature offset °C
01-Sep-81	Down	10.2	9.99	0.21	
20-Jan-82	Up	- 9.6	- 8.73	- 0.87	- 0.33
26-Jun-82	Down	13.6	13.42	0.18	
31-Aug-82	Up	5.3	5.10	0.20	0.19
31-Aug-82	Down	5.6	5.10	0.50	
10-Jan-83	Up	-19.0	-19.33	0.33	0.42
10-Jan-83	Down	-21.2	-20.48	- 0.72	
13-Jun-83	Up	4.9	5.20	- 0.30	- 0.51
01-Sep-83	Down	5.3	5.20	0.10	
18-Jan-84	Up	- 4.4	- 4.26	- 0.14	- 0.02
18-Jan-84	Down	- 6.8	- 6.13	- 0.67	
08-Jun-84	Up	3.6	3.23	0.37	- 0.15
08-Jun-84	Down	3.7	3.23	0.47	
17-Aug-84	Up	7.0	6.56	0.44	0.46
17-Aug-84	Down	7.6	6.76	0.84	
14-Jan-85	Up	- 3.0	- 2.91	- 0.09	0.37
14-Jan-85	Down	- 3.0	- 2.91	- 0.09	
05-Jun-85	Up	2.1	3.02	- 0.92	- 0.51
05-Jun-85	Down	2.0	2.61	- 0.61	
28-Aug-85	Up	13.0	12.48	0.52	- 0.04
28-Aug-85	Down	12.5	12.90	- 0.40	
03-Dec-85	Service	- 8.0	- 8.00	0.00	- 0.20
17-Feb-86	Up	- 2.5	- 2.18	- 0.32	- 0.16
17-Feb-86	Down	- 2.5	- 2.39	- 0.11	
15-Jun-86	Up	13.6	13.63	- 0.03	- 0.07
15-Jun-86	Down	13.3	13.31	- 0.01	
10-Feb-87	Up	0.1	- 0.62	0.72	0.35
10-Feb-87	Down	0.9	0.53	0.37	
12-Jun-87	Up	2.0	1.67	0.33	0.35
01-Oct-87	Down	1.8	1.67	0.13	
16-Mar-88	Up	- 2.5	- 2.59	0.09	0.11
11-Jun-88	Down	4.9	5.41	- 0.51	
20-Sep-88	Up	3.0	3.23	- 0.23	- 0.37
20-Sep-88	Down	3.1	3.13	- 0.03	
16-Feb-89	Up	- 1.5	- 0.72	- 0.78	- 0.40
16-Feb-89	Down	- 1.6	- 1.35	- 0.25	
07-Oct-89	Up	1.4	1.36	0.04	- 0.11
07-Oct-89	Down	0.6	1.05	- 0.45	
17-Mar-90	Up	- 1.3	- 1.35	0.05	- 0.20
17-Mar-90	Down	- 1.1	- 0.72	- 0.38	
04-Jun-90	Service	14.0	13.83	0.17	- 0.11
07-Sep-90	Up	6.2	6.56	- 0.36	- 0.10
07-Sep-90	Down	7.1	5.83	1.27	
07-Jan-91	Up	- 4.4	- 5.92	1.52	1.40
07-Jan-91	Down	- 4.8	- 5.19	0.39	
13-May-91	Up	1.0	1.98	- 0.98	- 0.29
14-Sep-91	Down	3.7	3.54	0.16	
22-Jan-92	Up	- 8.0	- 7.79	- 0.21	- 0.02
22-Jan-92	Down	- 7.9	- 8.00	0.10	
13-May-92	Up	5.3	7.91	- 2.61	- 1.25
04-Sep-92	Down	4.0	3.85	0.15	
16-Feb-93	Up	- 2.9	- 3.63	0.73	0.44
16-Feb-93	Down	- 2.9	- 3.43	0.58	
15-May-93	Up	6.1	7.08	- 0.98	- 0.20
08-Sep-93	Down	6.3	6.24	0.06	
04-Feb-94	Up	- 0.5	- 0.62	0.15	0.10
14-May-94	Down	1.1	0.42	0.68	
09-Sep-94	Up	5.0	5.10	- 0.10	0.29
09-Sep-94	Down	6.2	5.52	0.68	
30-Jan-95	Up	- 3.0	- 3.63	0.63	0.66

Table 8. Water concentration, density, and temperature variables used in equation 5 for calculating density of the antifreeze-water solution in the precipitation gage storage tank (modified from Mayo and others, 1992)

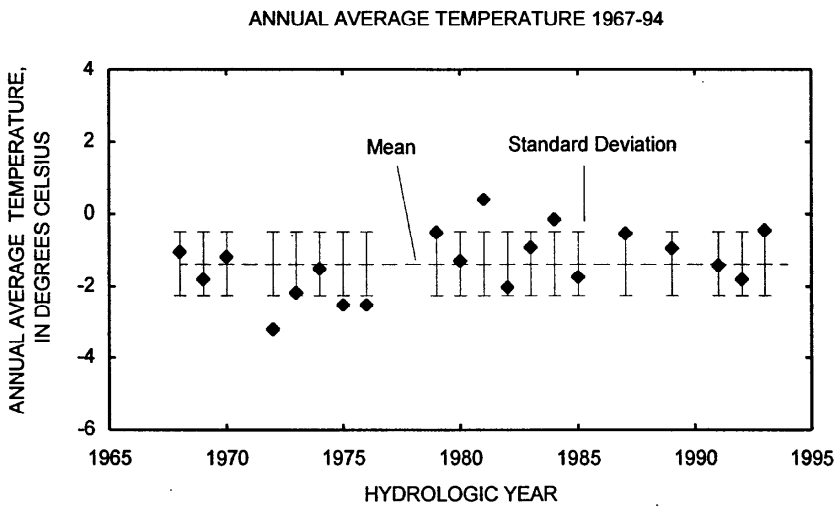
Water concentration range	Water concentration W_0	Density $d\rho s/dW$ (kg/L)	Temperature T_0 (°C)
$0.0 \leq W < 0.1$	0.0	0.167	-72.0
$0.1 \leq W < 0.2$	0.1	0.111	-47.0
$0.2 \leq W < 0.3$	0.2	0.081	-30.0
$0.3 \leq W < 0.4$	0.3	0.061	-18.0
$0.4 \leq W < 0.5$	0.4	0.046	- 9.0
$0.5 \leq W < 0.6$	0.5	0.034	- 2.0
$0.6 \leq W < 0.7$	0.6	0.027	3.0
$0.7 \leq W < 0.8$	0.7	0.017	7.0
$0.8 \leq W$	0.8	0.000	9.5

APPENDIX A

Graphs of monthly and annual air temperature and precipitation-catch data,

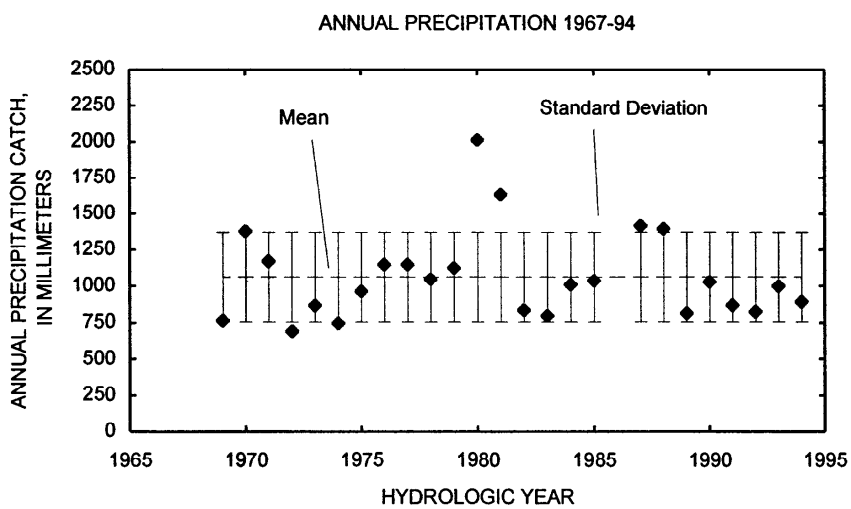
Wolverine Glacier basin, 1967-94

Appendix A. Graphs of monthly and annual air temperature and precipitation-catch data, Wolverine Glacier basin, 1967-1994



TEMPERATURE ANNUAL 1967-94	
Mean	-1.4
Std. Dev.	0.9
Range	3.6
Minimum	-3.2
Maximum	0.4
Count	20

Figure A1. Annual average air temperature at Wolverine Glacier basin, 1967-94 hydrologic years.



PRECIPITATION ANNUAL 1967-94	
Mean	1064
Std. Dev.	309
Range	1321
Minimum	690
Maximum	2011
Count	25

Figure A2. Annual precipitation catch at Wolverine Glacier basin, 1967-94 hydrologic years.

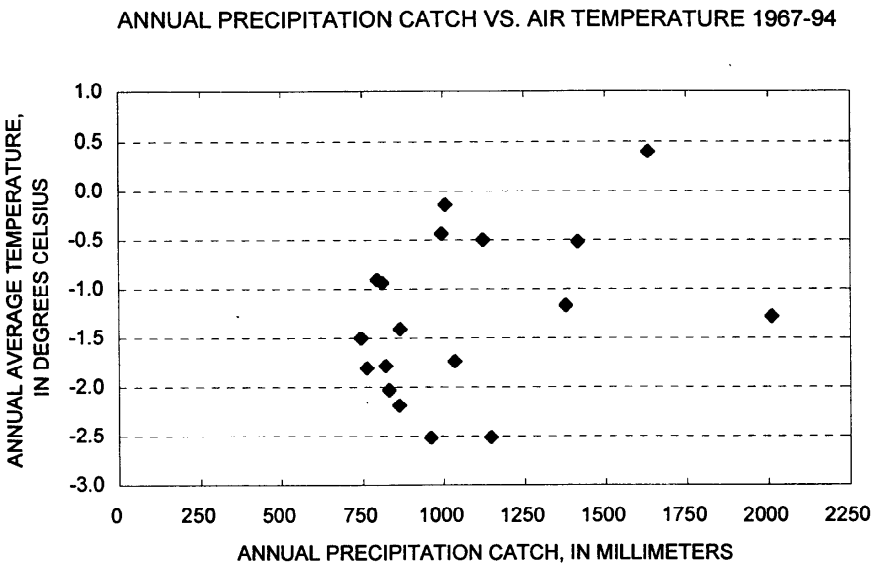


Figure A3. Relation between annual precipitation catch and annual average air temperature, Wolverine Glacier basin, 1967-94 hydrologic years.

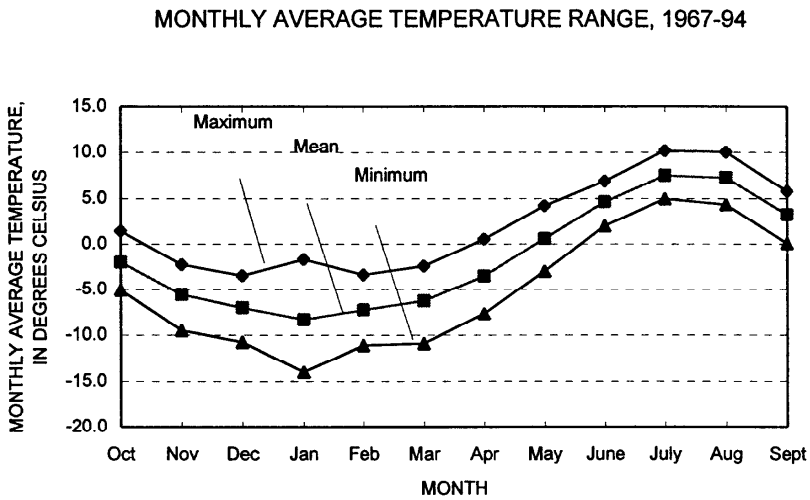


Figure A4. Monthly average temperature maximum, mean, and minimum, Wolverine Glacier basin, 1967-94 hydrologic years.

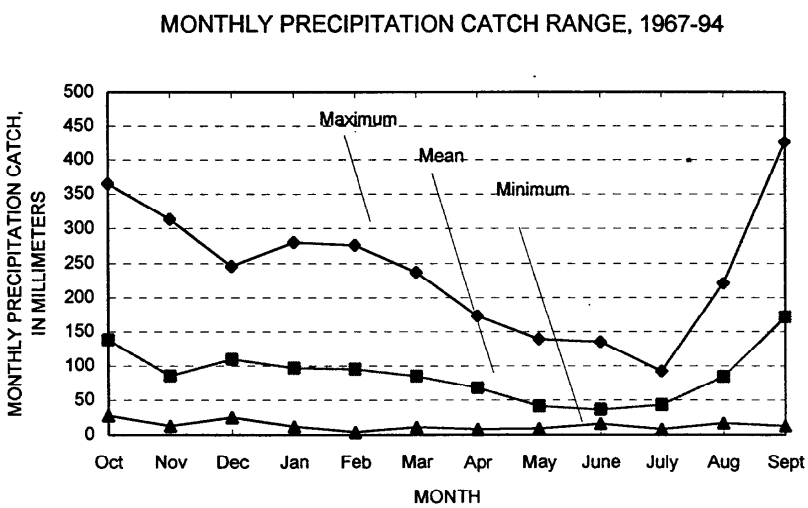
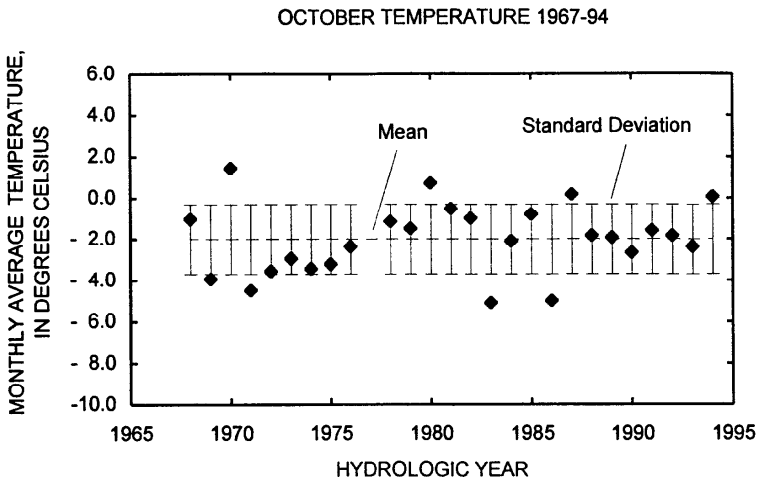
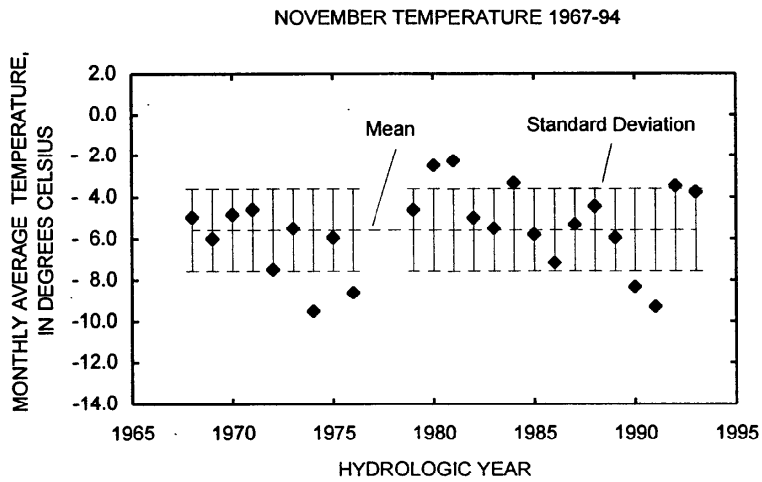


Figure A5. Monthly precipitation catch maximum, mean, and minimum, Wolverine Glacier basin, 1967-94 hydrologic years.

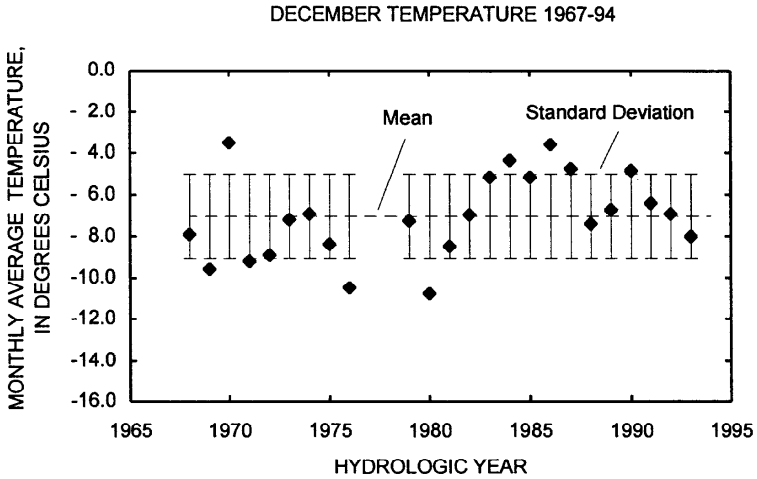


TEMPERATURE OCT 1967-94	
Mean	-2.0
Std. Dev.	1.7
Range	6.5
Minimum	-5.1
Maximum	1.5
Count	26

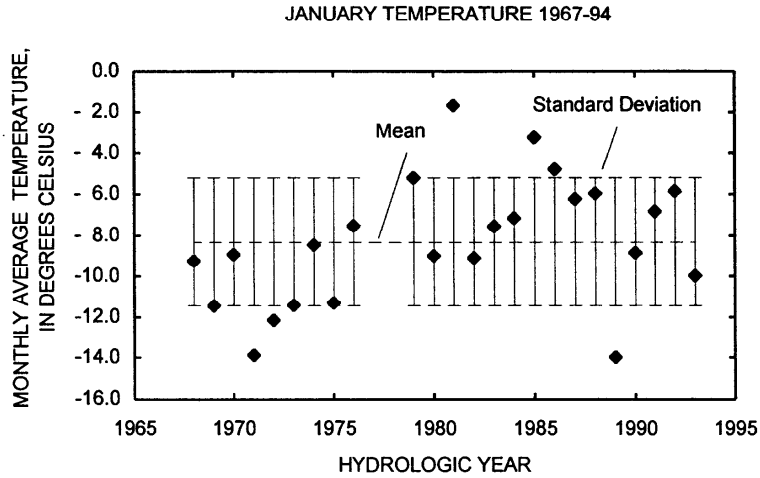


TEMPERATURE NOV 1967-94	
Mean	-5.6
Std. Dev.	2.0
Range	7.2
Minimum	-9.5
Maximum	-2.3
Count	24

Figure A6. Monthly average air temperature at Wolverine Glacier basin, 1967-94 hydrologic years.

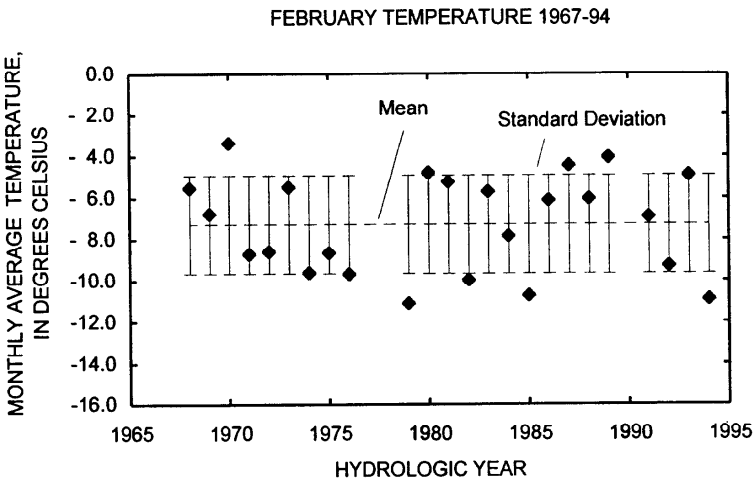


TEMPERATURE DEC 1967-94	
Mean	-7.0
Std. Dev.	2.0
Range	7.3
Minimum	-10.8
Maximum	-3.5
Count	24

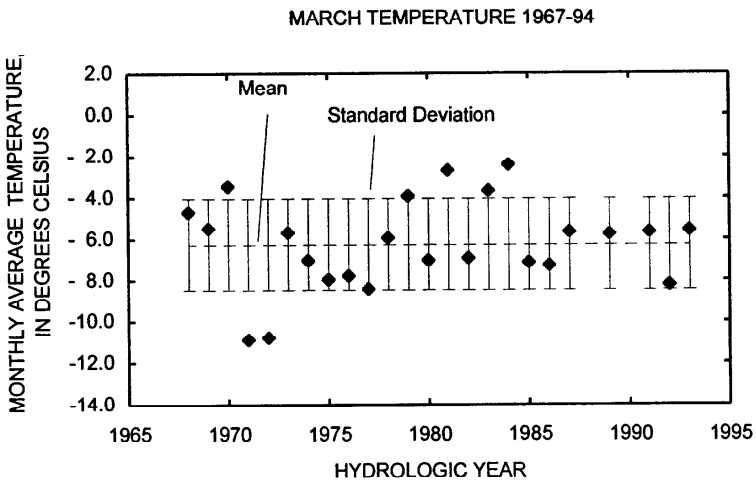


TEMPERATURE JAN 1967-94	
Mean	-8.3
Std. Dev.	3.1
Range	12.3
Minimum	-14.0
Maximum	-1.7
Count	24

Figure A6. Monthly average air temperature at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

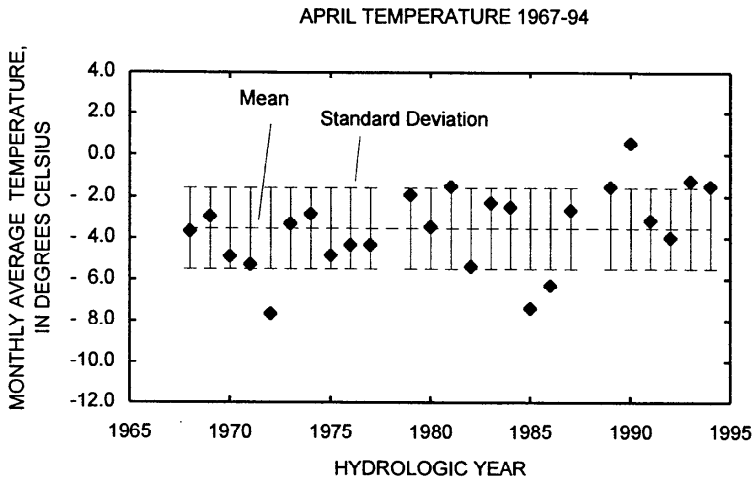


TEMPERATURE FEB 1967-94	
Mean	-7.3
Std. Dev.	2.4
Range	7.7
Minimum	-11.1
Maximum	-3.4
Count	24

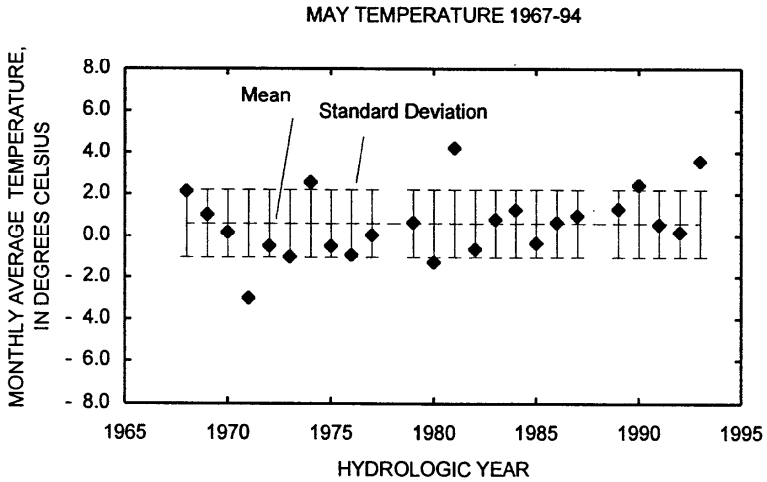


TEMPERATURE MAR 1967-94	
Mean	-6.3
Std. Dev.	2.2
Range	8.5
Minimum	-10.9
Maximum	-2.4
Count	25

Figure A6. Monthly average air temperature at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

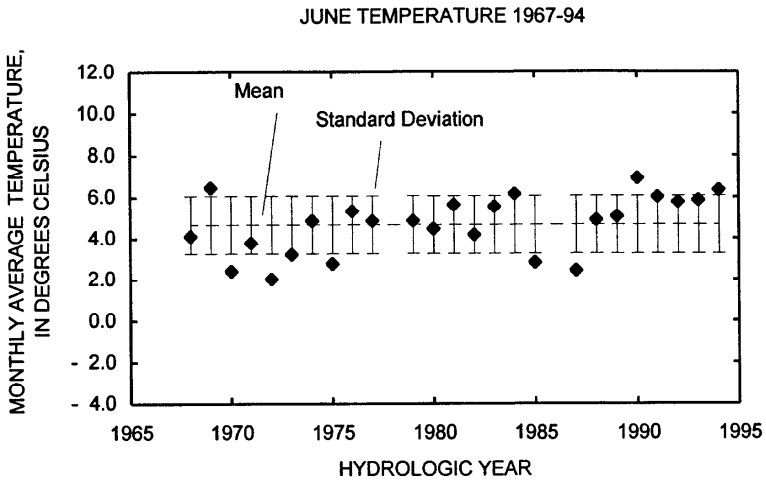


TEMPERATURE APR 1967-94	
Mean	-3.5
Std. Dev.	2.0
Range	8.2
Minimum	-7.7
Maximum	0.5
Count	25

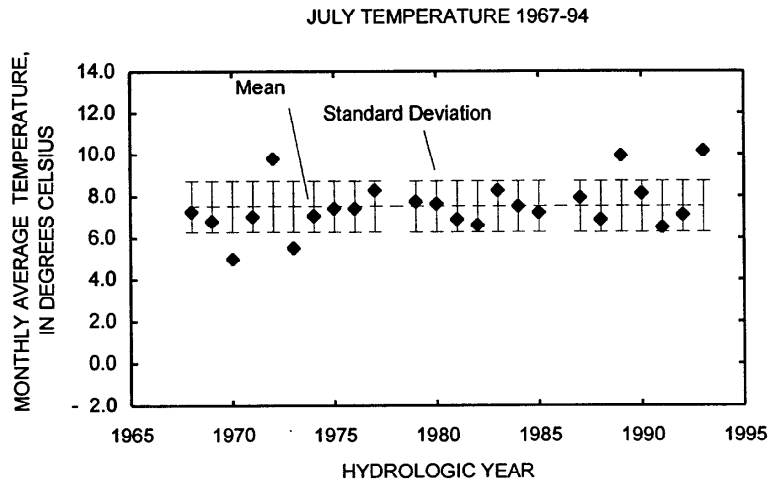


TEMPERATURE MAY 1967-94	
Mean	0.6
Std. Dev.	1.6
Range	7.2
Minimum	-3.0
Maximum	4.2
Count	25

Figure A6. Monthly average air temperature at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

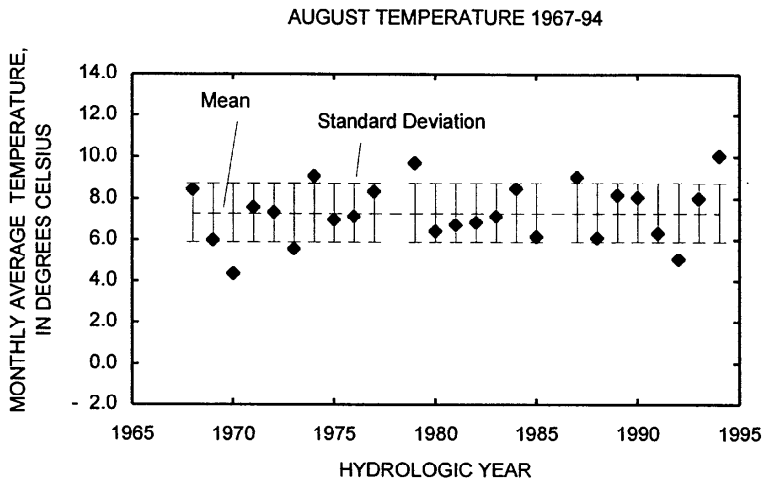


TEMPERATURE JUNE 1967-94	
Mean	4.7
Std. Dev.	1.4
Range	4.9
Minimum	2.0
Maximum	6.9
Count	26

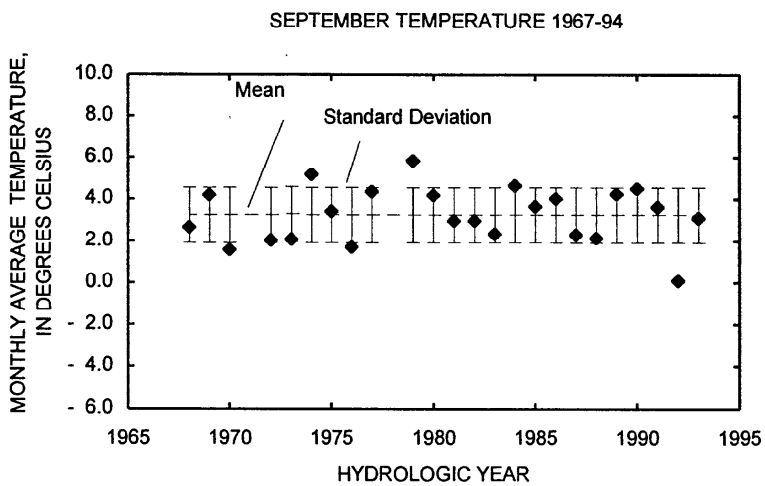


TEMPERATURE JULY 1967-94	
Mean	7.5
Std. Dev.	1.2
Range	5.2
Minimum	5.0
Maximum	10.2
Count	26

Figure A6. Monthly average air temperature at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

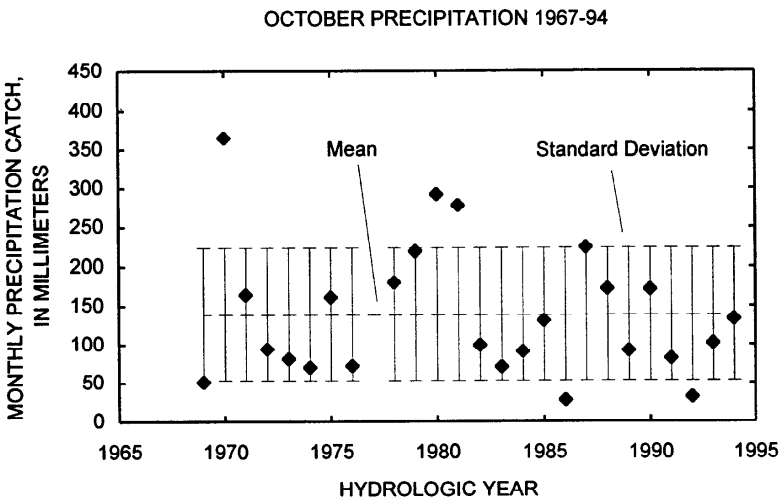


TEMPERATURE AUG 1967-94	
Mean	7.3
Std. Dev.	1.4
Range	5.7
Minimum	4.4
Maximum	10.0
Count	26

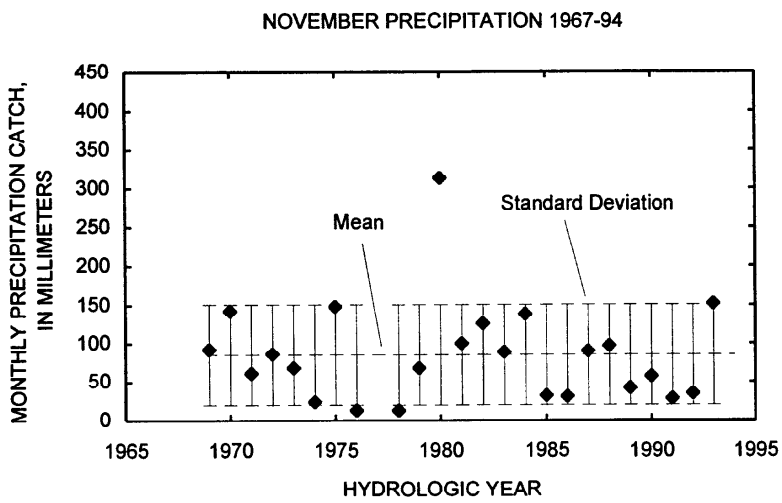


TEMPERATURE SEPT 1967-94	
Mean	3.3
Std. Dev.	1.3
Range	5.8
Minimum	0.1
Maximum	5.8
Count	26

Figure A6. Monthly average air temperature at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

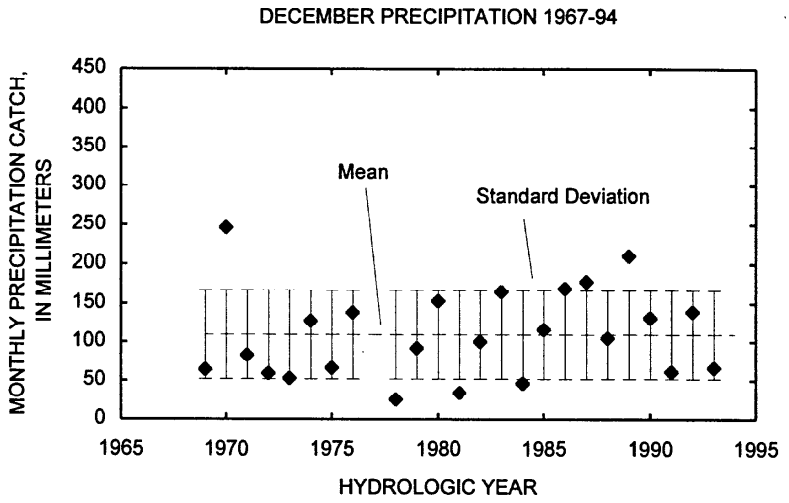


PRECIPITATION OCT 1967-94	
Mean	138
Std. Dev.	85
Range	337
Minimum	28
Maximum	365
Count	25

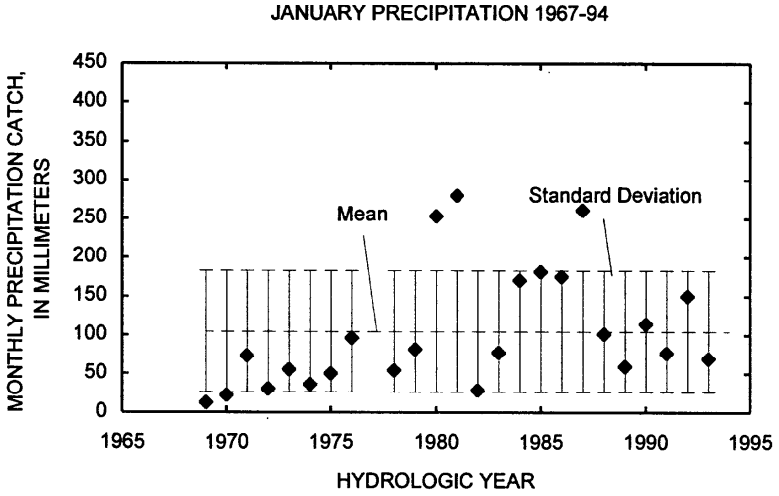


PRECIPITATION NOV 1967-94	
Mean	85
Std. Dev.	65
Range	300
Minimum	13
Maximum	313
Count	24

Figure A7. Monthly precipitation catch at Wolverine Glacier basin, 1967-94 hydrologic years.

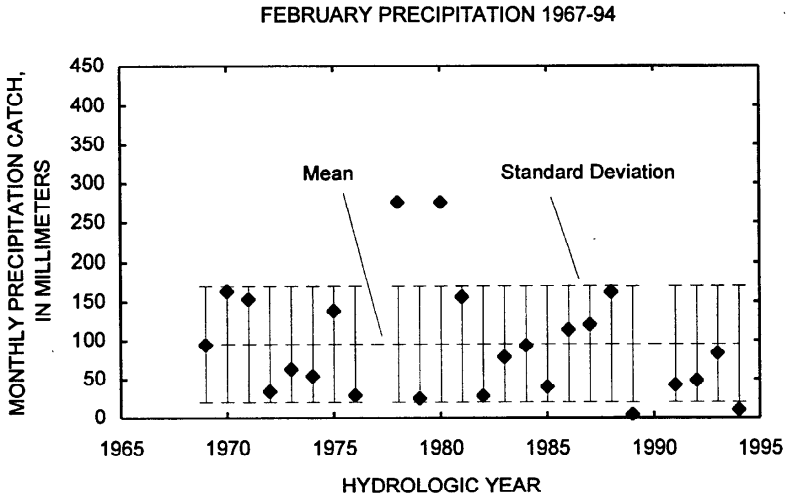


PRECIPITATION DEC 1967-94	
Mean	109
Std. Dev.	58
Range	221
Minimum	25
Maximum	246
Count	24

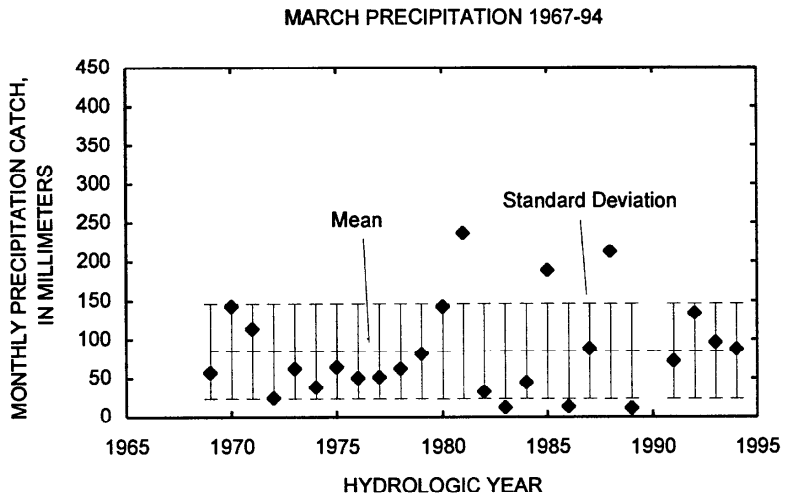


PRECIPITATION JAN 1967-94	
Mean	104
Std. Dev.	78
Range	268
Minimum	12
Maximum	280
Count	24

Figure A7. Monthly precipitation catch at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

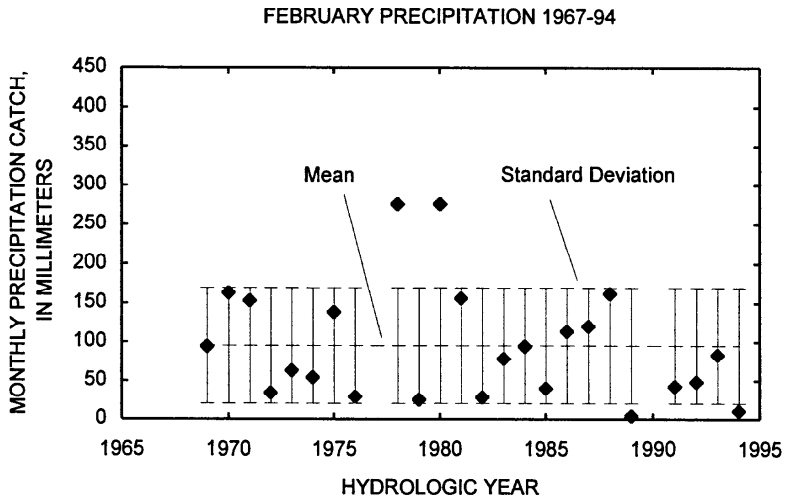


PRECIPITATION FEB 1967-94	
Mean	95
Std. Dev.	75
Range	272
Minimum	4
Maximum	276
Count	24

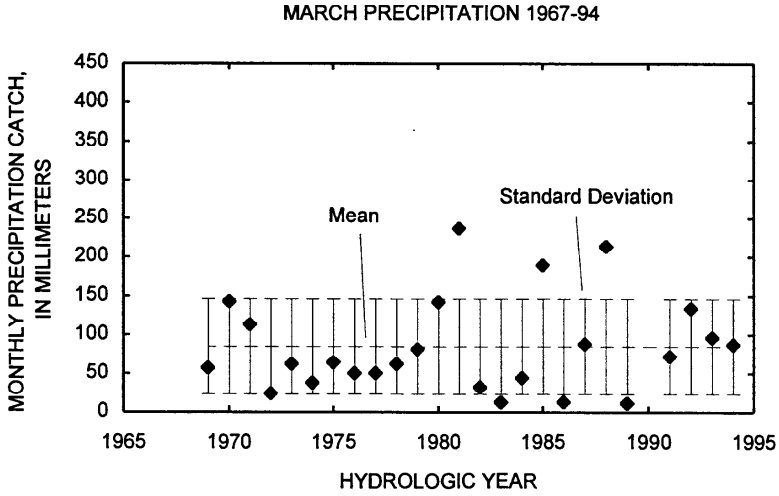


PRECIPITATION MAR 1967-94	
Mean	85
Std. Dev.	62
Range	226
Minimum	11
Maximum	237
Count	25

Figure A7. Monthly precipitation catch at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

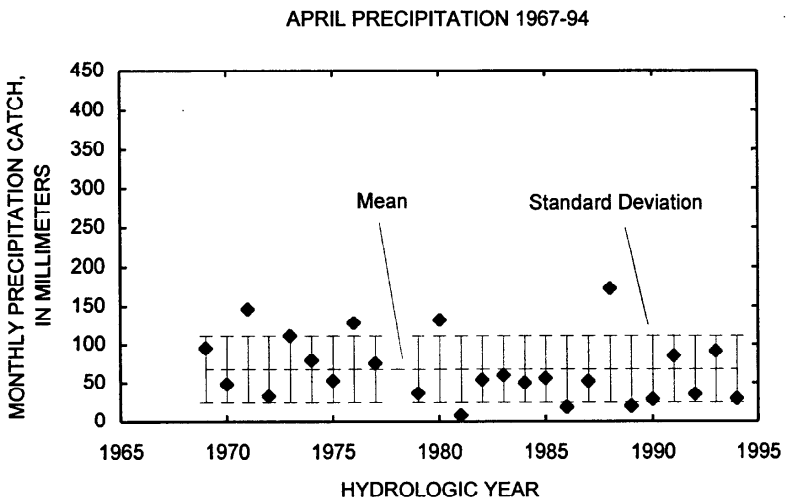


PRECIPITATION FEB 1967-94	
Mean	95
Std. Dev.	75
Range	272
Minimum	4
Maximum	276
Count	24

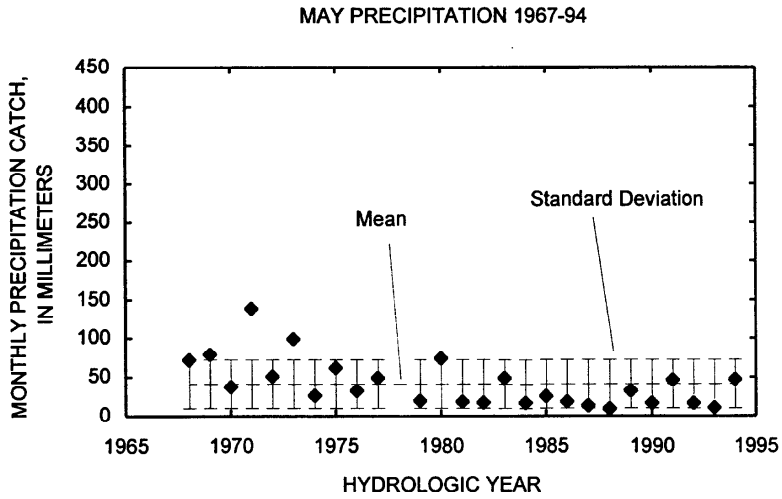


PRECIPITATION MAR 1967-94	
Mean	85
Std. Dev.	62
Range	226
Minimum	11
Maximum	237
Count	25

Figure A7. Monthly precipitation catch at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

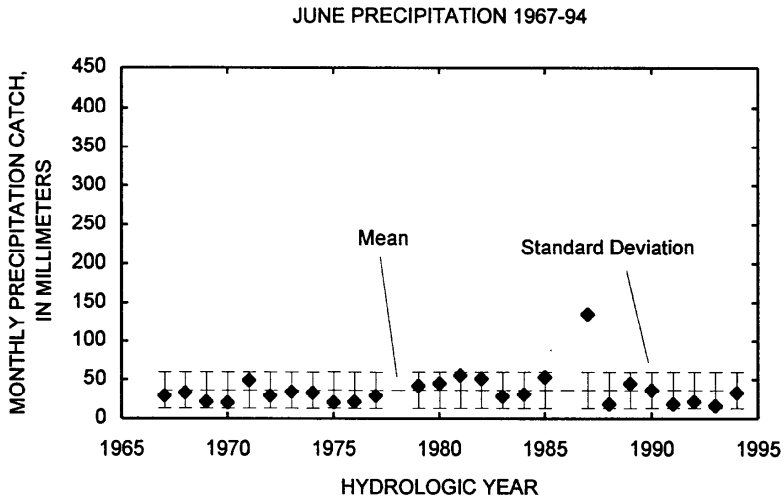


PRECIPITATION APR 1967-94	
Mean	68
Std. Dev.	43
Range	165
Minimum	8
Maximum	173
Count	25

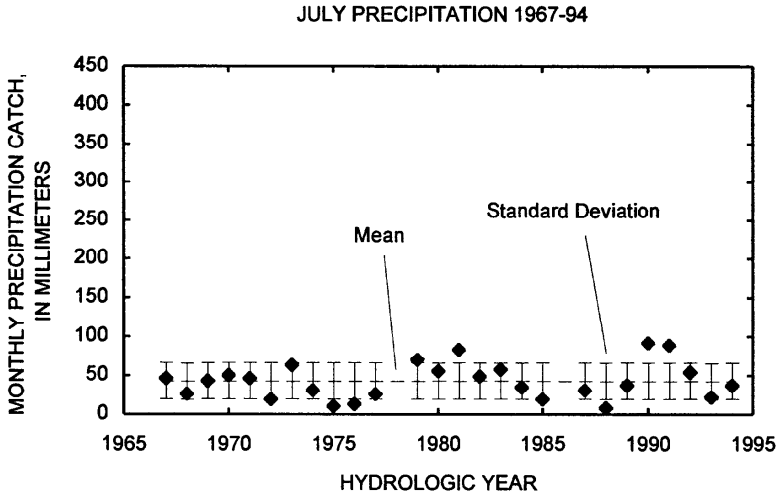


PRECIPITATION MAY 1967-94	
Mean	41
Std. Dev.	31
Range	130
Minimum	9
Maximum	139
Count	26

Figure A7. Monthly precipitation catch at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

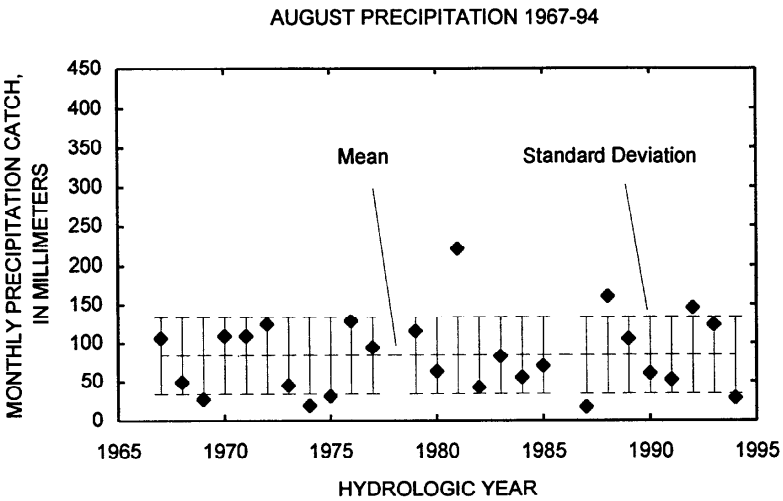


PRECIPITATION JUNE 1967-94	
Mean	36
Std. Dev.	23
Range	119
Minimum	16
Maximum	135
Count	26

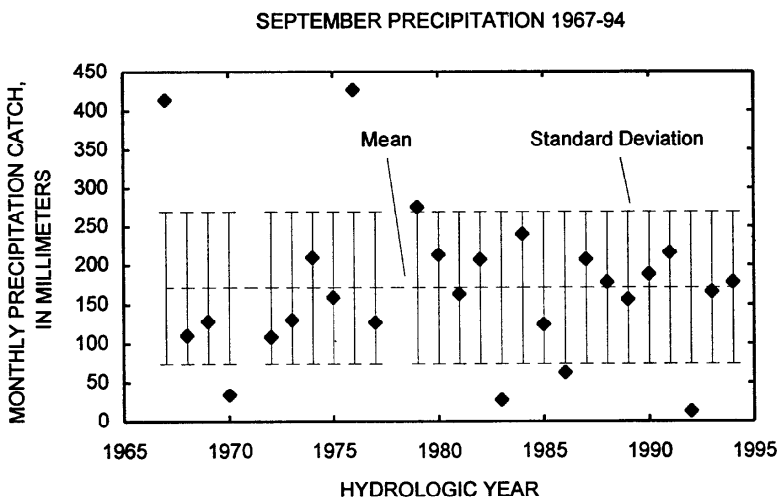


PRECIPITATION JULY 1967-94	
Mean	43
Std. Dev.	23
Range	84
Minimum	8
Maximum	92
Count	26

Figure A7. Monthly precipitation catch at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.



PRECIPITATION AUG 1967-94	
Mean	84
Std. Dev.	50
Range	204
Minimum	17
Maximum	221
Count	26



PRECIPITATION SEPT 1967-94	
Mean	171
Std. Dev.	98
Range	413
Minimum	13
Maximum	426
Count	26

Figure A7. Monthly precipitation catch at Wolverine Glacier basin, 1967-94 hydrologic years--Continued.

APPENDIX B

Data disk information

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Appendix B. Data disk information

A data disk is included with this report. The disk contains daily average air temperature and precipitation-catch data from Wolverine Glacier basin for the years 1967-94. It is a 3.5-inch, 1.44 megabyte disk formatted with IBM PC operating system MS-DOS 6.0. Data tables are written in two formats: ASCII text and Lotus 123 version 2.01 .WK1 spreadsheet format. The ASCII files are in a subdirectory named **ASCII** and the Lotus 123 files are in a subdirectory named **Lotus 123**.

In the root directory on the disk there is an ASCII file named README.TXT. It says:

This text file contains an overview of the files available on this data disk.

Report title:
Air Temperature and Precipitation Data,
Wolverine Glacier Basin, Alaska, 1967-94
By Ben W. Kennedy
U.S. GEOLOGICAL SURVEY Open-File Report 95-444

For additional information write to:

District Chief
U.S. Geological Survey
4230 University Drive, Suite 201
Anchorage, Alaska 99508-4664

This disk contains the 1967-94 daily average air temperature and precipitation-catch data from Wolverine Glacier basin. It is a 3.5-inch, 1.44 megabyte disk formatted with IBM PC operating system MS-DOS 6.0. Data tables are written in two formats: ASCII text and Lotus 123 version 2.01 .WK1 spreadsheet format. The ASCII files are in a subdirectory named **ASCII** and the Lotus 123 files are in a subdirectory named **Lotus 123**.

There are two daily data files, WGTEMP--daily temperature data and WGPRECIP--daily precipitation-catch data. Both files have identical formats. The data are formatted in columns by hydrologic year. Column one contains dates beginning with October 1, includes February 29, and ends with September 30. Columns 2 though 30 are labeled by year and contain data in ascending order for 1967 through 1994 hydrologic years, with data for 1994 being the last data column. Where data are missing the column is blank. The WGPRECIP file contains one additional row of data after September 30 listing precipitation-catch "storage" values measured for 1971, 1977, 1978, 1990, and 1994 hydrologic years.

There are two summary data files, TABLE2--monthly and annual air temperature data and TABLE3--monthly and annual precipitation-catch data. Both files are identical in content and format to table 2 and table 3 presented in this report.

Lotus 123 files	ASCII files	File description
WGTEMP.WK1	WGTEMP.TXT	Daily air temperature
WGPRECIP.WK1	WGPRECIP.TXT	Daily precipitation
TABLE2.WK1	TABLE2.TXT	Monthly & annual temperature
TABLE3.WK1	TABLE3.TXT	Monthly & annual precipitation