

A CATALOG OF HYDROCLIMATOLOGICAL  
DATA FOR ALASKA'S COASTAL ZONE

A catalog of hydroclimatological data for Alaska's coastal zone

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INTRODUCTION

The essential and obvious feature of Alaska's coastal zone is its water. It is the primary prerequisite of life forms of all kinds, both on the land and in the sea. A complete understanding of this water zone is important to many present day concerns - resource development, conservation, and environmental.

Although it forms a complex natural and human system, we believe that a firm understanding of the coastal zone will not be possible until its hydroclimatology (the water system of the atmosphere and land mass) is better understood. A coastal zone study usually means a study of the near shore areas of the sea water. However, it is difficult to imagine almost any human development of the natural system without use of the atmospheric and land based water. By ignoring this fact, developments which have been begun in the coastal zone have become uneconomical or have experienced difficulty. A practical example of this fact is the water shortage of the Kodiak region in the Spring of 1972. At that city, the entire sea based industry was closed down for several months due to a lack of water supply. A strong argument can be made for a better understanding of the many effects of atmospheric and land based water system including that of the coastal zone.

In order to perceive a better understanding of the interrelationships of the coastal zone water we proposed a research project which was to sort out many of the complex variables. The project was not begun due to the lack

of sufficient funds. We did, however, begin a limited literature search and listing of hydroclimatological data sources of Alaska's coastal zone. We felt this would be a modest but useful start towards the larger study. It should also have some practical usefulness to others. This data catalog is a result of this initial study. Because of the wide variety of types of agency which collect data and the literally hundreds of sources through which they are reported, it is often quite bewildering for even experienced investigators to sort out what can be found and where. Although we are sure that the catalog is far from complete, we feel that it is a useful beginning towards an attempt to better understand the hydroclimatological processes in Alaska's coastal zone. We wish to invite contributions and criticisms which could lead to an improved and more comprehensive version at some future date.

We gratefully acknowledge the support of the Sea Grant Program of the University of Alaska and the support and encouragement of its Director, David Hickok. The project also received support from the Office of Water Resources Research and the State of Alaska through the Institute of Water Resources at the University of Alaska. Finally, we want to gratefully acknowledge the efforts of Lalitha Rao who compiled most of the catalog.

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### INSTRUCTIONS FOR USE

The data catalog layout is quite straight forward. Each source listing has three parts - an information citation, the nature of the data available, and the location for which all or part of the data is available.

The information citation is comprized of six parts - the agency which compiled the data, the title of the source, the author(s), the publication date of the source, the date(s) for which the data are applicable, and the library accession number of the source; the main University library, unless another is indicated. If a portion of the citation was not available it is left as a blank space between two commas.

AN INDEX OF DATA SOURCES LISTED BY LOCALITY

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<u>General, Non-Specific Localities</u>	<u>Source</u>
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North America	98, 99, 113, 114, 115, 116, 117, 118, 119, 120.
Northern Hemisphere	1-0, 101, 169, 170, 171, 172.

Source No. 1.

U. S. Coast Pilot, Alaska, Cape Spencer to Arctic Ocean, , 1954,  
, SKNR.VK943 U7 Y3.

Visibility (percentage of all observations): Monthly and annual.

Precipitation (inches): Mean, least and greatest amounts, max.  
amount in 24 Hrs., mean no. of days 0.01" or more.

Snowfall (inches): Mean amount.

Air Temperature (°F): Mean, max. & min.

Wind (percentage of all observations): seasonal.

Anchorage, Bethel, Cape Spencer, Cold Bay, Cordova, Dutch Harbor,  
Gambell, Homer, Kodiak, Nome, Point Hope, Seward, Yakutat.

Source No. 2.

Alaska Department of Health, Water Hydrological Data, Water Resources,  
Reconnaissance Gambell and Savoonga Villages, St. Lawrence Island,  
Alaska, R. M. Waller, 1957, , .

Ground-water conditions. Chemical analyses of water from St.  
Lawrence Island.  
Gambell.

Source No. 3.

Headquarters Quartermaster Research and Engineering Command, U. S.  
Army, Macro- and Microclimatology of the Arctic Slope of Alaska,  
J. H. Conover, 1960, 1947-1953, D 106.9/4: 139 C.2.

Temperature (°F): Average daily max., avg. min. temp. in the  
Barrow area - Barrow Village; Barrow 1; 2; 3 & 4 1953-1954  
Monthly temp. extremes & avg. diurnal ranges (°F) by months at  
Barrow 1921-1953. Normal and annual temperatures (1947-1953).

Precipitation (inches): Monthly and annual precipitation 1947-1953.  
Percentage frequency of occurrence of precipitation types  
[9 year's data]

Snowfall (inches): Normal monthly and annual snowfall, 1947-1953.

Wind (m.p.h.): Avg. wind speeds: Summer - Winter  
Barter Island, Nome, Point Barrow, Umiat.

Source No. 4.

U. S. Coast Pilot 8, Pacific Coast Alaska Dixon Entrance to Cape  
Spencer, , 1969, 1967, Docs. C 4.7/2: 8/12, U. S. Dept. of Comm-  
erce, ESSA, Coast and Geodetic.

Air Temperature (°F): Monthly normal and extreme.

Precipitation (inches): Normal total, max. in 24 hrs., snow,  
sleet & mean total.

Humidity (%): 10:00AM PST, 10:00PM PST.

Wind (knots): Mean speed, prevailing direction, max. speed & direc-  
tion.

Mean sky cover sunrise to sunset: Monthly.

Mean no. of days: Sunrise to sunset - clear, partly cloudy &  
cloudy. Pcpn. 0.01" or more, snow, sleet 1.0" or more, thunder-  
storms, heavy fog.

Annette, Juneau, Ketchikan, Sitka.

Source No. 5.

, Temperature and Wind Frequency Tables for North America and Greenland, , 1960, 1946-1955, Forestry Science Lib. 111.5: 111.24. Arctic Meteorology Research Group.  
Temperature, frequency and percentage frequency of wind speed - January to December.  
Anchorage, Barter Island, Cordova, Kodiak, Kotzebue, Nome, Point Hope, Sitka, Yakutat.

Source No. 6.

, Precipitation Probabilities for Selected Sites in Alaska, C. Ivan Branton & C. F. Watson, 1969, , SKNR.S33 E28 No. 1, U. of Ak. Agricultural Exp. Station.  
Precipitation (inches): Pcpn. means & probabilities for 1-week, 2-week, 3-week periods:  
Anchorage, Bethel, Homer, Ketchikan, Kodiak, Nome.

Source No. 7.

, Climate and Man, Gove Hambidge, 1941, , AHRC Lib. QC 981 U.  
Temperature (°F): Means and extremes.  
Precipitation (inches): Monthly & annual avg. pcpn.  
Anchorage, Cordova, Dillingham, Dutch Harbor, Gambell, Juneau, Ketchikan, Kodiak, Kotzebue, Nome, Point Barrow, Sitka, Wrangell.

Source No. 8.

, Meteorology of the Arctic, S. Petterssen, W. C. Jacobs, B. C. Haynes, 1956, , AHRC Lib. QC 994.8 P 48m. U. S. Navy.  
Monthly mean no. of days with "Gales."  
Monthly avg. specified wind speed (m.p.h.)  
Temperature (°F): Monthly absolute maximum temp. & min. temp., monthly mean temp.  
Monthly mean daily max. & Min. temps.,  
Monthly mean no. of days with min. temp. < 32°F.  
Precipitation (inches): Monthly mean no. of days with pcpn, monthly mean pcpn.  
Snowfall (inches): Monthly mean no. of days with snow, mean monthly snowfall, monthly mean snow depth.  
Relative humidity (%): Monthly mean relative humidity (%), mean monthly cloudiness (%), mean no. of clear days, partly cloudy days, & cloudy days, monthly mean no. of days with fog.  
Anchorage, Bethel, Gambell, Kotzebue, Nome, Point Barrow.

Source No. 9.

U. S. Forest Service, Summary of 10-year avgs. of max. temp., min. relative humidity, pcpn, and windspeed during the fire season for selected Alaska mainland stations, W. M. Trigg, 1964, , Forestry Science Lib. 111.82, U. S. Department of Agriculture.  
Temperature (°F):  
Precipitation (inches):  
Relative Humidity (%):

Source No. 9, continued:

Wind Speed (m.p.h.):

Anchorage, Bethel, Dillingham, Homer, King Salmon, Kotzebue, Nome.

Source No. 10.

Alaska Forest Research Center, Climate in Southeast Alaska in Relation to Tree Growth, H. E. Anderson, 1955, , SKNR.SD 12 A4 U57 No. 3, U. S. Department of Agriculture.

Temperature (°F): Mean temp. May - September. Annual temp., absolute max. & min. temp.

Precipitation (inches): Annual, monthly percentage of annual pcpn. Annette, Annex Creek, Cape Spencer, Juneau, Ketchikan, Sitka, Wrangell, Yakutat.

Source No. 11.

Weatherwise, The Weather and Climate of Alaska, J. Murray Mitchell, 1958 (photostat), 1931-1952, AHRC Lib. QC 984.A4 Pam.

Temperature (°F): Extreme max. & min., avg. daily max. & min., warmest month - coldest month, frequency max. temp. 70° or above, 32° or below, frequency min. temp. 32° or below, 0° or below.

Precipitation (inches): Avg. annual total Pcpn., frequency of measurable pcpn.

Snowfall (inches): Avg. annual, max. observed monthly.

Wind (m.p.h.): Prevailing direction, avg. annual speed, fastest mile.

Clouds and fog: Mean cloudiness of clearest month (%), Mean cloudiness of cloudiest month (%), Frequency of dense fog.

Anchorage, Annette, Bethel, Cold Bay, Juneau, Point Barrow.

Source No. 12.

, Climate and Man, Gove Hambidge, 1941, , AHRC Lib. QC 981 U, U. S. Department of Agriculture.

Temperature (°F): January and July average, max. & min., length of record.

Killing frost average dates: Last in Spring, first in Fall, growing season.

Precipitation (inches): Monthly and annual avg. pcpn.

Bethel.

Source No. 13.

U. S. Geological Survey (Water Supply Paper 1570), Quantity & Quality of Surface Waters of Alaska, 1958, , 1960, 1958, Docs. I 19.13: 1570, Chamberlin Creek (near Barter Island).

Discharge in cubic ft./sec. June to August. Drainage area (sq. mi.) Maximum discharge during period, Minimum daily.

Chamberlin Creek (near Barter Island).

Source No. 14.

U. S. Geological Survey, Water Resources Data for Alaska, Part 1 Surface Water Records. Part 2. Water Quality Records, , 1966,

Source No. 14, continued.

1965-1966, Docs. I 19.2: W315/967/Pts. 1,2. Sheep Creek (near Juneau).

Monthly Discharge (in cubic ft./sec.):

Extremes: Max. discharge during year, Max. gage height, Min. daily discharge.

Auke Creek at Auke Bay, Bay Creek (Trib. to Auke Bay), Big Creek (near Pt. Baker), Bradley R. (near Homer), Cooper R. (near Chitna), Crater Lake (near Nome), Grace Creek (near Ketchikan), Harding R. (near Wrangell), Ketchikan Creek at Ketchikan, Matanuska R. (at Palmer), Nuyakuk R. (near Dillingham), Sheep Creek (near Juneau), Ship Creek (near Anchorage), Ship Creek (Trib. to Cook Inlet), Snake R. (near Nome), Talkutna R. (near Talkutna), W. Fork Olson Bay Creek.

Source No. 15.

U. S. Geological Survey, Compilation of Records of Quality & Quantity of Surface Waters of Alaska through Sept. 1950., , 1957, 1947-1950, Docs. I 19.13: 1372 c2. Dorothy Creek (near Juneau).

Max. & Min. discharges: for water years 1946-1950.

Monthly and Yearly Mean Discharge: in cubic ft./sec. 1930-1945.

Monthly and Yearly Runoff: in acre-ft. 1930-1945.

Discharge: in cubic ft./sec. - Daily and monthly - Oct. 1947 to Sept. 1950.

Peak Discharge: (base, cfs.).

Cooper Creek (near Cooper Landing), Davis R. (near Hyder), Dorothy Creek (near Juneau), Eklutna River (near Palmer), Fish Creek (near Ketchikan), Kenai R. (at Cooper Landing), Lost Creek (near Seward), Manzanita Creek (near Ketchikan), Matanuska R. (at Palmer), Sawmill Creek (near Sitka), Winstanley Creek (near Ketchikan).

Source No. 16.

U. S. Geological Survey, Quantity and Quality of Surface Waters of Alaska, 1957, , 1960, , 19.13: 1500, Dorothy Creek (near Juneau).

Daily & Monthly Discharge: in cubic ft./sec.

Maximum Discharge during year. Minimum recorded, Average discharge (cfs).

Dorothy Creek (near Juneau), Nuyakuk R. (near Dillingham), Uganik R. (near Kodiak).

Source No. 17.

U. S. Geological Survey, Water Resources Data for Alaska, Part 1, Surface Water Records, , 1969, 1968-1969, Docs. I 19.2: W315/969 Pt. 1, Sheep Creek (near Juneau).

Average discharge: Monthly discharge in cubic ft./sec.

Extremes: Max. discharge, Min. discharge.

Peak Discharge: (Base cfs.).

Arctic Creek (near Nome), Baranof River at Baranof (S.E. Ak.), Beaver Creek (at Kenai), Bradley River (near Homer), Bruce Creek (near

Source No. 17, continued.

Seward), Cascade Creek (near Juneau), Cook Inlet Tributary (Cook Inlet), Cooper River (near Chitina), Cooper River (Tributary to Gulf of Alaska), Funny River (Stream) Trib. of Kenai R., Long River (near Juneau), Power Creek (near Cordova), Salmon River (S.E. Alaska), Sea Level Creek (near Ketchikan), Sheep Creek (near Juneau), Skagway River at Skagway, S. Fork Cambell Creek near Anchorage, Uganik River (near Kodiak), Winstanley Creek (near Ketchikan).

Source No. 18.

U. S. Geological Survey, Water Resources Data for Alaska, Part 1: Surface Water Records, , 1966, 1965-1966, Docs. I 19.2: W315/966/Pt. 1, June Creek (near Kotzebue).

Monthly discharge: in cubic ft./sec., water year 1965-1966.

Extremes: Max. discharge during year.

Drainage Area: (sq. mi.).

June Creek (near Kotzebue).

Source No. 19.

Weatherwise, The Weather and Climate of Alaska, J. Murray Mitchell, 1958(photostat), 1931-1952, AHRC Lib. QC 984 A4 Pam.

Temperature: ( $^{\circ}$ F) Extreme max. & min., Avg. daily max. & min., warmest month - coldest month, Frequency max. temp.  $70^{\circ}$  or above,  $32^{\circ}$  or below, Frequency min. temp.  $32^{\circ}$  or below,  $0^{\circ}$  or below.

Precipitation: (inches) Avg. annual total pcpn., Avg. annual snowfall, Max. observed monthly snowfall, Frequency of measurable pcpn.

Wind (m.p.h.): Prevailing direction, avg. annual speed, fastest mile.

Clouds and Fog: Mean cloudiness of clearest month (%) & month. Mean cloudiness of cloudiest month (%) & month. Frequency of dense fog.

Nome.

Source No. 20.

, Unusual Weather & river bank erosion in the Delta of the Colville River, H. J. Walker and H. M. Morgan, 1964, 1961-1962, SKNR G 600 A 69.

Temperature ( $^{\circ}$ F): Monthly avg. temp.

Precipitation(inches): Max. & min. pcpn, total, rainy days, percentage of time during which the greatest 24-hour rainfall of the month is accompanied by winds from the Southwest Quadrant, amount of total monthly pcpn. occurring in one 24-hour period.

Wind (mph): Avg. wind speeds & monthly wind direction. Total hours of winds of various speeds in percent.

Barter Island, Point Barrow.

Source No. 21.

, Arctic Engineering, , 1955, , Docs. D. 209.10: PW-11/c.2. U. S. Navy.

Source No. 21, continued.

Temperature (°F): Monthly and annual mean temps.

Precipitation (inches): Monthly and annual avg.

Barter Island, Dutch Harbor, Kodiak.

Source No. 22.

Environmental Protection Research Div., A Method of Predicting the Frequency Distribution of Windchill, J. H. Westbrook, 1961, Docs. D 106.9/4: 743. U. S. Army Hdqtrs. Q. Master Res. & Engg. Comm. Period of record & long term temp. (°F) and windspeed (m.p.h.) avgs. and windchill indices, (kg/cal/M<sup>2</sup>/hr.). Computed windchill indices, frequencies, and avgs. Histograms of windchill distribution. Anchorage.

Source No. 23.

U. S. Geological Survey, Groundwater Levels in the United States 1961-1965, , 1968, 1961-1965, Docs. I 19.13: 1845, Matanuska Valley Area.

Well descriptions and water-level measurements: Highest water level (9ft.) for the day, from recorder graph, 1961. Highest water level for the day, above & below land surface datum (Lsd), from recorder graph, 1961 - 1963.

Control Creek (near Cordova), Matanuska Valley area.

Source No. 24.

U. S. Geological Survey, Quality of Surface Waters of Alaska, 1961-1963, , 1965, 1960-1963, Docs. I 19.13: 1953. Matanuska River Basin (near Palmer).

Chemical Analysis: In parts per million, water year 1960 to Sept. 1963.

Temperature (°F): of water, Oct. 1960-Sept. 1963.

Suspended Sediment: Oct. 1960-Sept. 1963.

Particle-Size (mm) Analyses of Suspended Sediment: Oct. 1962-Sept. 1963.

Extremes: (For observation), 1961-1963. Dissolved Solids: Max., min.; Hardness: Max., min.; Specific Conductance (Microhms), Max., min.

Water Temperatures: 1958-1963, Max., sediment concentrations: Max. daily. Sediment loads: Max. daily.

Cooper R. Basin, Tonsina R. at Tonsina, Kuskikwim R. (Crooked Creek), Matanuska R. Basin (near Palmer), Trail R. Basin (near Lawing).

Source No. 25.

ESSA, Climates of the World, , 1969, 1968, Docs. C 52.2: C 61/3.

Temperature (°F): Avg. daily temp. Extreme temp.

Precipitation (inches): Avg. monthly & annual pcpn. Length of records of temp. & pcpn.

Anchorage, Annette, Bethel, Cold Bay, Juneau, King Salmon, Nome, Point Barrow, St. Paul Island, Yakutat.

Source No. 26.

Weather Information Branch, Headquarters, Army Air Force, Climatic

Source No. 26, continued.

Atlas of Alaska, , 1943, 1941-1942, SKNR. QC 984 A4 W37.

Temperature (°F): Mean temps. Mean max. & min. temps. Absolute max. & min. temps. No. of days with freezing temp.

Wind: Prevailing wind direction.

Precipitation (inches): Mean pcpn., greatest 24-hr. pcpn., mean no. of days with 0.01" or more of pcpn.

Snowfall (inches): Mean snowfall.

No. of clear days and mean percentage of - clear days, partly cloudy, cloudy days.

Anchorage, Bethel, Cordova, Cape Spencer, Dillingham, Dutch Harbor, Homer, Juneau, Kotzebue, Kodiak, Nome, Point Barrow, Sitka, Seward, Valdez, Wrangell, Yakutat.

Source No. 27.

Environmental Data Service, ESSA, Local Climatological Data - Annual Summary, , 1971, 1968-1971, Geophysical Institute Lib.

Temperature (°F): Avgs., normals, means and extremes.

Degree days (base 65°): Total; heating & cooling.

Precipitation (inches): Total, normals, means and extremes.

Snowfall (inches): Total, max. monthly, max. in 24 hours.

Wind (m.p.h.): Resultant direction & speed, fastest speed & direction, normals, means & extremes.

Percentage of possible sunshine & mean sky cover - sunrise to sunset.

Mean no. of days: Sunrise to sunset - clear, partly cloudy, cloudy, pcpn. 0.01" or more, snow, ice 1.0" or more, thunderstorms, heavy fog, max. & min. temps.

Anchorage, Juneau, Kotzebue, King Salmon, Nome, Point Barrow, St. Paul Island.

Source No. 28.

Environmental Data Service, ESSA, Climatological Data, , , 1965-1970, .

Temperature (°F): Monthly avg. temps. & departures from normal, temp. extremes and freeze data, daily avg. temps., monthly & seasonal heating degree days.

Precipitation (inches): Monthly & annual total pcpn. & departures from normal, daily pcpn., no. of days with pcpn.

Relative humidity (%): Avgs.

Snowfall (inches): Monthly total snowfall & no. of days with 1" or more on ground, monthly max. snow (sleet) depth on ground, daily snowfall, snow on ground and water equivalent.

Wind Speed (miles): Resultant direction & speed, avg. wind speed, fastest mile, direction of fastest mile, date of fastest mile.

Barter Island, Cordova, Cold Bay, Kotzebue, Ketchikan, Kodiak, Point Barrow, Umiat, Yakutat.

Source No. 29.

Headquarters Army Air Forces, Climatology of Alaska, , 1946, 1937-1940, AHRC Lib. QC 983 U. U. S. Department of Commerce.

Source No. 29, continued.

General Conditions: Monthly, seasonal and annual mean fog.

Thunderstorms.

Precipitation (inches): Monthly.

Temperature (°F): Monthly

Ceiling Height & Visibility:

Anchorage, Annex Creek, Bethel, Cordova, Cape Spencer, Dutch Harbor, Juneau, Kotzebue, Ketchikan, Kodiak, Nome, Point Barrow, Seward, St. Paul Island, Wrangell.

Source No. 30.

Environmental Data Service, ESSA, Climates of the States, Alaska, H. W. Searby, 1968, 1959-1961, Docs. C 30.71/3: 49/2 C.2.

Freeze Data: Freeze threshold temp., mean data of last spring occurrence, mean date of first fall occurrence, mean no. of days between dates, years of record spring, no. of occurrences in spring, years of record fall, no. of occurrences in fall.

Temperature (°F): Monthly & annual temps., normals, means & extremes.

Solar Radiation (Langleys): Avg. daily.

Precipitation (inches): Monthly & annual pcpn., normal total, max. monthly, min. monthly, max. in 24 hrs. - annual.

Snowfall (inches): Mean total, max. monthly & annual, max. in 24 hrs.

Relative humidity (%): Standard Alaskan time used.

Wind and fastest mile (m.p.h.): Mean hourly speed, direction, fastest speed.

Bethel, King Salmon, Nome, Point Barrow.

Source No. 31.

Environmental Science Services Administration, Selected Climatic Maps of the United States, , , 1921-1950, Docs. C52.2: C61.

Temperature (°F): Normal daily max. & min. temps. for January & July. Mean annual no. of days max. temp. 90°F & above, except 70°F & above in Alaska. Mean annual no. of days min. temp. 32°F & below. Mean annual total heating degree days (Base 65°F). Mean annual total cooling degree days (Base 65°F). Mean date of last 32°F temp. in Spring. Mean date of first 32°F temp. in Autumn. Mean length of freeze-free period (days).

Precipitation: Mean annual no. of days with 0.01" or more of pcpn. Normal annual total pcpn. (inches). Mean annual no. of days with thunderstorms, Mean annual total snowfall (inches).

Relative Humidity (%): For January and July. Mean annual relative humidity .

Mean monthly percentage of possible sunshine for January and July.

Mean annual percentage of possible sunshine.

Mean annual total hours of sunshine.

Mean daily solar radiation (Langleys) for January and July.

Surface wind roses for January, July and annual.

Anchorage, Annette, Bethel, Barter Island, Cold Bay, Juneau, Kodiak, Nome, Point Barrow, Sitka, Seward, Yakutat.

Source No. 32.

Environmental Data Service, ESSA, Local Climatological Data - Annual Summary, , 1971, 1968-1969, 1970-1971, Geophysical Institute Lib.

Temperature (°F): Avgs., normals, means and extremes.

Precipitation (inches): Total, normals, means and extremes.

Degree Days (Base 65°): Total, heating & cooling.

Snowfall (inches): Total, max. monthly, max. in 24 hours.

Wind (m.p.h.): Resultant direction & speed, fastest speed & direction, normals, means & extremes.

Percentage of possible sunshine & mean sky cover - sunrise to sunset, Mean no. of days: Sunrise to sunset - clear, partly cloudy, cloudy, pcpn. 0.01" or more, snow, ice 1.0" or more, thunderstorms, heavy fog, max. & min. temps.

Annex Creek, Attu, Bethel, Baranof, Barter Island, Cordova, Cold Bay, Dillingham, Homer, Kotzebue, King Salmon, St. Paul Island, Unalakleet, Valdez, Wrangell, Whittier, Yakutat.

Source No. 33.

ESSA, Coastal Weather and Marine Data Summary for Gulf of Alaska, Cape Spencer Westward to Kodiak Island, H. W. Searby, 1969, , Docs. C 52.15/2: EDSTM 8.

Ceiling and visibility: Monthly (feet & miles).

Average Cloud Cover: (is in tenths of sky covered between sunrise and sunset). Climatic depiction map. No. of days partly cloudy, cloudy, fog, pcpn.

Precipitation: Amount

Average Wind Direction, speed, max. speed.

Mean tide ranges and diurnal tide ranges.

Kodiak, Yakutat.

Source No. 34.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary, H. J. Thompson, , 1947-1949, SKNR.QC 984 A4 W3.

Pressure: Sea level pressure extremes - inches.

Wind (m.p.h.): Wind Direction.

Relative Humidity Averages:

Temperature (°F): Monthly and annual avg. temps. and departures from normal.

Precipitation (inches): Monthly and annual total pcpn. and departures from normal.

Sunshine: Number of days.

Miscellaneous Data:

Annette, Annex Creek, Attu, Barter Island, Cordova, Cold Bay, Cape Spencer, Dillingham, Gambell, Homer, Juneau, King Salmon, Sitka, Seward, St. Paul Island, Unalakleet, Valdez, Wrangell, Whittier, Wainwright, Yakutat.

Source No. 35.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary,

Source No. 35, Continued.

H. J. Thompson, 1947, 1946, SKNR.WC 984 A4 W3.

Pressure: Sea level pressure extremes - inches.

Relative Humidity Averages:

Wind (m.p.h.):

Temperature (°F): Monthly and annual temps. and departures from normal.

Precipitation (inches): Monthly and annual total pcpn. and departures from normal.

Snowfall (inches): Total snowfall.

Number of days: with pcpn. 0.01" or more, clear, partly cloudy, cloudy, sunshine.

Miscellaneous Data:

Annette, Annet Creek, Attu, Barter Island, Cordova, Cold Bay, Cape Spencer, Dillingham, Gambell, Homer, Juneau, King Salmon, Sitka, Seward, St. Paul Island, Unalakleet, Valdez, Wrangell, Whittier, Wainwright, Yakutat.

Source No. 36.

U. S. Coast & Geodetic Survey, Density of Sea Water at Coast & Geodetic Survey Tide Stations, , 1950, 1922-1949, Docs. C 4.19:281.

Density of Sea Water: Tables of monthly and yearly means and extremes together with Salinities.

Mean Salinity Curves: Graphs showing seasonal variation.

Density: Salinity conversion table.

Dutch Harbor, Juneau, Ketchikan, Kodiak, Point Barrow, Sitka, Seward, Yakutat.

Source No. 37.

NOAA, Surface Water Temperature and Density, , 1970, 1922-1969, P.R. 2154.

Temperature (°C): Monthly surface water temps., means & extremes.

Density ( $\sigma$ ): Monthly surface water densities, means & extremes.

Mean temp. & density curves.

Anchorage, Cordova, Dutch Harbor, Homer, Juneau, Ketchikan, Kodiak, Point Barrow, Sitka, Seward, Yakutat.

Source No. 38.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary, H. J. Thompson, , 1940-1945, SKNR.QC 984 A4 W3.

Pressure: Sea Level pressure extremes - inches.

Relative Humidity Averages:

Wind (m.p.h.):

Temperature (°F): Monthly and annual temps., monthly max. & min. temps, Avg. temps & departures from normal.

Precipitation (inches): Monthly and annual total pcpn. & departures from normal.

Snowfall (inches): Monthly, annual and seasonal snowfall.

Number of Days: Clear, partly cloudy, and cloudy, sunshine.

Miscellaneous Data:

Source No. 38, Continued.

Annex Creek, Annette, Attu, Barter Island, Cordoya, Cold Bay, Cape Spencer, Dillingham, Gambell, Homer, Juneau, King Salmon, Sitka, Seward, St. Paul Island, Unalakleet, Valdez, Wrangell, Whittier, Wainwright, Yakutat.

Source No. 39.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary, H. J. Thompson, 1941, 1940, SKNR.QC 984 A4 W3, U. S. Department of Commerce.

Pressure (sea level pr. extremes - inches):

Wind (m.p.h.):

Relative Humidity Averages:

Sunshine:

Average Temperatures & Departures from Normal:

Total Precipitation & Departures from Normal:

Miscellaneous Data:

Dutch Harbor

Source No. 40.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary, H. J. Thompson, , 1940-1949, SKNR.QC 984 A4 W3, U. S. Department of Commerce.

Pressure: Sea level pressure extremes (inches):

Relative Humidity Averages:

Sunshine:

Monthly & annual temperature (°F):

Monthly & Annual Mean Temperatures & Departures from Normal:

Precipitation (inches): Monthly & annual total pcpn. Monthly & annual total pcpn. & departures from normal.

Snowfall (inches): Total snowfall (unmelted).

Wind (m.p.h.): Monthly & annual wind direction.

Number of Days: Clear, partly cloudy, cloudy.

Monthly, annual & seasonal snowfall

Monthly max. & min. temps.

Miscellaneous Data:

Kotzebue

Source No. 41.

U. S. Weather Bureau, Climatological Data, Alaska, , 1966, 1965, SKNR.QC 984 A4 W3.

Temperature (°F): Monthly avg. max., min., avg., departure from normal, highest & lowest with dates, daily, avg. temps. and departures from normal, monthly & annual, temp. extremes & freeze data.

Precipitation (inches): Monthly and annual total pcpn. and departures from normal, daily pcpn., no. of days with pcpn.

Snowfall (inches): Snowfall and snow on ground (daily), monthly total snow (sleet), max. depth on the ground with date.

Supplemental Data: Wind speed (mph), wind direction, relative

Source No. 41, continued.

humidity avgs., percent of possible sunshine, avg. sky cover  
sunshine to sunset.

Miscellaneous Data: (seasonal data). Freeze-up last Fall, Break-up  
this Spring, etc.

Kotzebue.

Source No. 42.

U. S. Weather Bureau, Climatological Data, Alaska, Melvin B. Summers,  
1916, 1916, SKNR.QC 984 A4 W3, U. S. Department of Agriculture.

Temperature (°F): Monthly max., monthly min., with dates, monthly  
and annual mean with departures from the normal.

Snowfall (inches): Monthly and annual.

Point Barrow.

Source No. 43.

U. S. Weather Bureau, Local Climatological Data, , , 1953-1959,  
Forestry Science Lib.

Temperature (°F): Daily & monthly max. & min., avg. hourly temps.  
(about 20 min. after the hr.), normals, mean & extremes.

Heating Degree Days (Base 65°):

Precipitation (inches): Total, 6-hourly pcpn.

Snowfall (sleet, hail): Normals, means & extremes.

Wind: Prevailing direction, avg. speed (m.p.h.), fastest speed &  
direction, temp. & wind speed, relative humidity, occurrences,  
wind direction & speed occurrences.

Sky cover: Sunrise to sunset, hourly occurrences of sky cover,  
wind & relative humidity.

Pressure:

Psychrometric Data:

Annette

Source No. 44.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary,  
, , 1962-1964, SKNR.QC 984 A4 W3.

Temperature (°F): Avg. temps & departures from normal.

Precipitation (inches): Total pcpn. & departures from normal.

Temperature extremes & freeze data:

Annette, Annex Creek, Attu, Baranof, Barter Island, Cordova, Cold  
Bay, Cape Spencer, Dillingham, Homer, Juneau, Kotzebue, King Salmon,  
Sitka, Seward, St. Paul Island, Unalakleet, Valdez, Wrangell,  
Whittier, Wainwright, Yakutat.

Source No. 45.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary,  
, , 1957-1961, SKNR.QC 984 A4 W3.

Temperature (°F): Avg. temps & the departures from long-term means.

Precipitation (inches): Total pcpn. & departures from long-term  
means.

Temperature extremes & freeze data:

Source No. 45, Continued.

Annex Creek, Annette, Attu, Baranof, Barter Island, Cordova, Cold Bay, Dillingham, Homer, Juneau, Kotzebue, King Salmon, Sitka, Seward, Unalakleet, Valdez, Wrangell, Whittier, Wainwright, Yakutat, Cape Spencer, St. Paul Island.

Source No. 46.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary, , , 1955-1956, SKNR.QC 984 A4 W3.

Temperature (°F): Avg. temps. & departures from normal.

Precipitation (inches): Total pcpn. with departures from normal.

Miscellaneous Data:

Annex Creek, Annette, Attu, Barter Island, Cordova, Cold Bay, Cape Spencer, Dillingham, Homer, Juneau, Kotzebue, King Salmon, Sitka, Seward, St. Paul Island, Umiat, Unalakleet, Wrangell, Whittier, Wainwright, Yakutat.

Source No. 47.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary, Mac A. Emerson, 1955, 1954, SKNR.QC 984 A4 W3.

Temperature (°F): Avg. temps. & departures from normal.

Precipitation (inches): Total pcpn. with departures from normal.

Miscellaneous Data:

Annex Creek, Annette, Attu, Barter Island, Cordova, Cold Bay, Cape Spencer, Dillingham, Homer, Juneau, Kotzebue, King Salmon, Sitka, Seward, St. Paul Island, Unalakleet, Wrangell, Whittier, Wainwright, Yakutat.

Source No. 48.

U. S. Weather Bureau, Climatological Data Alaska - Annual Summary, Robert F. Dale, , 1951-1953, SKNR.QC 984 A4 W3.

Temperature (°F): Avg. temps & departures from normal.

Precipitation (inches): Total pcpn. with departures from normal.

Miscellaneous Data:

Annex Creek, Annette, Attu, Barter Island, Cordova, Cold Bay, Cape Spencer, Dillingham, Homer, Juneau, Kotzebue, King Salmon, Sitka, Seward, St. Paul Island, Unalakleet, Valdez, Wrangell, Wainwright, Whittier, Yakutat.

Source No. 49.

U. S. Weather Bureau, Local Climatological Data, , , 1960-1964, Forestry Science Lib.

Temperatures (°F): Daily & monthly mean temps., avgs., normals, means & extremes.

Precipitation (inches): Total, normals, means & extremes, 6-hrly.pcpn.

Snowfall (inches): Monthly & seasonal snowfall, mean total, max. monthly, max. in 24 hours.

Heating degree days: Monthly & seasonal.

Relative humidity (%): Normals, means, and extremes.

Source No. 49, Continued.

Wind (m.p.h.): Fastest mile, mean hourly speed, prevailing direction, wind speed & direction occurrences (hourly observations).  
Ceiling & visibility (mi.): Hourly observations.  
Sky cover: Sunrise to sunset (tenths) - Midnight to Midnight.  
Occurrences of weather: By hour of day, by wind direction.  
Anchorage, Annette, Bethel, Cordova, Juneau, Kotzebue, Point Barrow.

Source No. 50.

U. S. Weather Bureau, Local Climatological Data, , , 1953-1959, Forestry Science Lib.  
Temperature (°F): Daily & monthly max. & min. avg. hourly temps. (about 20 min. after the hr.), normals, means & extremes.  
Heating degree days (Base 65°):  
Precipitation (inches): Total, 6-hourly, pcpn.  
Snow, Sleet, Hail (inches): Normal, means & extremes.  
Wind (mph): Prevailing direction, avg. speed (mph), fastest speed & direction, temp. & wind speed.  
Relative humidity (%): Occurrences, wind direction & speed occurrences, 6-hourly observations of wind.  
Sky cover: Sunrise to sunset, hourly occurrences of sky cover, wind & relative humidity, 6 hourly observations of sky cover.  
Pressure:  
Psychrometric Data:  
Anchorage, Bethel, Cordova, Juneau, Kotzebue, Point Barrow.

Source No. 51.

U. S. Weather Bureau, Local Climatological Data, , , 1946-1952, Forestry Science Lib.  
Temperature (°F): Daily max., min. & mean.  
Degree Days (Base 65°): Daily.  
Precipitation (inches): Hourly pcpn. & total pcpn.  
Snowfall (inches): Total, unmelted, total depth.  
Wind: Prevailing direction, highest velocity.  
Ceiling and visibility frequencies: (hourly record observations)  
Relative humidity (%): (75th Meridian time)  
Sunshine: No. of hours, percent of possible sunshine, clear, partly cloudy, cloudy.  
No. of days: Avg. cloudiness (Scale 1-10), pcpn. 0.01" or more, snow, 0.01" or more, thunderstorms, fog, dense fog, light.  
Temp. 32° or below, 90° or above, 0° or below.  
Psychrometric Data: (Taken at times of synoptic observations.)  
Anchorage, Annette, Cordova, Juneau, Kotzebue, Point Barrow.

Source No. 52.

U. S. Weather Bureau, Temperature Frequencies in the Upper Air, Benjamin Ratner, 1946, , AHRC.Lib. QC 903 R38.  
Temperature frequencies in the upper air.  
Anchorage, Bethel, Juneau, Ketchikan, Point Barrow.

Source No. 53.

U. S. Weather Bureau (Tech. Paper 32), Upper-air Climatology of the United States - Part 2; Benjamin Ratner, 1958, 1946-1955, Geophysical Institute Lib.

Extremes of heights (gpm) & temperatures ( $^{\circ}\text{C}$ ).

Standard deviations of heights (GPM) & temperatures.

Charts of avgs., extremes, and standard deviations of height & temperature (850, 700, 500, 300, 200, 150, 100 mb.) for January.

Anchorage, Annette, Bethel, Juneau, Gambell, Kotzebue, Ketchikan, Nome, Point Barrow, Yakutat.

Source No. 54.

U. S. Weather Bureau Alaska Region, Climate Along a Pipeline from the Arctic to the Gulf of Alaska, H. W. Searby, 1968, 1948-1953, Docs. C 52.15/2: WBTMAR-2.

Surface Wind Data: Monthly avg. velocity & prevailing direction  
Monthly wind speed & direction of extreme winds.

Temperature ( $^{\circ}\text{F}$ ): (For the first day of the month). Monthly avg. ground temperature, depth in feet.

Anchorage, Barter Island, Point Barrow.

Source No. 55.

U. S. Weather Bureau, Climatological Data National Summary, , , 1960-1965, Geophysical Lib. QC 983 A535.

Pressure (mb.): Station  $\phi$ , sea level

Temperature ( $^{\circ}\text{F}$ ): Avg. max. & min., avg. temp., normals, means & extremes, departures from the normal, highest & lowest temps., avg. daily max. & min. temps. ( $^{\circ}\text{C}$ ), extremes with date, avg. dew point.

Heating degree days: Annual, seasonal, and monthly.

Precipitation (inches): Total, departure from normal, normals, means & extremes, annual total pcpn. (mm), greatest in 24 hours. (mm)

Relative humidity (%): Monthly avg. & annual.

Wind (m.p.h.): Resultant speed & direction, fastest wind speed & direction monthly

Wind (m.p.s.): Resultant speed & direction, fastest wind speed & direction annual.

Solar Radiation (Langleys): Daily totals & monthly avgs. received on a horizontal surface.

Miscellaneous data: Avg. monthly values of rawinsonde data.

Anchorage, Bethel, Barter Island, Cold Bay, Point Barrow, Yakutat.

Source No. 56.

U. S. Weather Bureau, World Weather Records Volume 1, North America, , 1965, 1951-1960, Docs. C 30.2 W89/951-60.

Pressure (Mb.): Station Pressure, monthly mean, Sea Level pressure, annual mean.

Temperature ( $^{\circ}\text{C}$ ): Monthly, annual, mean.

Precipitation (mm.): Monthly, Annual, total.

Cold Bay, Kotzebue, Point Barrow, Yakutat.

Source No. 57.

U. S. Weather Bureau, Climates of the States, Alaska, , 1959,  
, SKNR QC 984 A4 W35.

Freeze data:

Temperature (°F): Monthly and annual mean temp., normals, means,  
and extremes of temp.

Precipitation (inches): Monthly and annual total pcpn., normals,  
means, and extremes of pcpn.

Wind: Normals, means, and extremes.

Relative humidity (%): Normals, means, and extremes.

Mean number of days: Sunrise to sunset - clear, partly cloudy,  
cloudy, and max., min. temps.

Anchorage, Annex Creek, Annette, Bethel, Barter Island, Cordova,  
Cold Bay, Juneau, Kotzebue, Ketchikan, Kodiak, Nome, Point Barrow,  
Sitka, St. Paul Island, Valdez, Wrangell, Yakutat.

Source No. 58.

U. S. Weather Bureau, World Weather Records Vol. 1, North America,  
, 1959, 1924-1950, C.30.2 W89/941-50.

Temperature (°F): Monthly & mean temps. from 1924-1950.

Pressure at Station level (inches): Means of 1/2 (0230 + 1430),  
150°W meridian time, corrected to 0°C & to gravity at 45°  
Lat. Monthly & mean pressure from 1943 - 1950.

Pressure at Sea level (900 mb. +): Means of 1/2 (0230 + 1430),  
150°W meridian time. Monthly and mean pressure from 1943-1950.

Total Precipitation (inches): Monthly & mean pcpn. 1924 - 1950.

Anchorage, Bethel, Kodiak, Point Barrow.

Source No. 59.

U. S. Weather Bureau, Northern Hemisphere Data Tabulations, , 1962,  
, Dept. of Forestry Science Lib.

Pressure (mb.): Daily.

Temperature (°C): Daily.

Relative humidity (%): Daily.

Wind (m.p.h.): Wind speed and direction (degrees).

Anchorage, Bethel, Barter Island, Cold Bay, Kotzebue, Kodiak,  
King Salmon, Nome, Point Barrow, St. Paul Island, Yakutat.

Source No. 60.

U. S. Weather Bureau: Tech. Paper No. 6, Upper Air averages values of  
Temperature, Pressure, and Relative Humidity Over the United States  
and Alaska, , 1949, 1940-1943, AHRC Lib. QC 879 U59 u.

Pressure (Mbs): Monthly avg. pressures.

Relative humidity (%): Monthly avg. relative humidity.

Temperature (°C): Monthly average temp.

Anchorage, Bethel, Juneau, Ketchikan, Point Barrow.

Source No. 61.

U. S. Weather Bureau, Climatology of the United States No. 81 - 43.  
, 1962, , Geophysical Library.

Source No. 61, Continued.

Temperature (°F): Maximum, min., avg., monthly & annual.

Precipitation (inches): Monthly & annual.

Degree days (°F): Monthly

Bethel, Barter Island, Nome, Point Barrow.

Source No. 62.

U. S. Geological Survey, Core tests and test wells Barrow Area,

Alaska, F. R. Collins, 1961, 1944-1953, Docs. I 19.16: 305-K.

Barrow Core rig test 1: Description of cores & cuttings. Drilling operations.

Point Barrow.

Source No. 63.

U. S. Weather Bureau, Climatic Summary of Alaska - Supplement for 1922-1952, , , 1922-1952, SKNR.QC 984 A4 W3 Suppl. 1922-1952.

Snowfall: Mean, monthly & annual.

Temperature: Mean, mean max. & mean min. temp. Highest & lowest temps.

Barter Island, Cape Spencer, Dutch Harbor, Juneau, Ketchikan, Kodiak, Point Hope, Sitka, Seward.

Source No. 64.

Weather Bureau, United States Meteorological Yearbook, , 1949, 1942, C 30.25: 942.

Pressure (inches) Monthly means & extremes - station level, sea level.

Temperature (°F): Monthly means & extremes.

Moisture: Monthly means & dew point.

Relative humidity (%): Monthly mean.

Precipitation (inches): Total, max. in 24 hours.

Snowfall (inches): Total.

Wind (miles): Avg. hourly velocity, prevailing direction.

No. of Days: Clear, partly cloudy, cloudy, pcpn, snow, fog, max. & min. temperature.

Anchorage, Bethel, Point Barrow.

Source No. 65.

, Climatology of the Arctic Regions Part I, Rigby, M., 1946, 1941-1942, AHRC Lib. QC 994.8 W594 C, Air Weather Service.

Mean monthly lapse rates (°C/100m)

Vertical temp. gradient (°C/100m) surface to 500 meters - monthly

Monthly mean height of Tropopause in kilometers.

Relative humidity: Mean monthly & annual (%), mean monthly & annual (%) aloft from Radiosondes.

Wind: Avg. no. of gales/month & year, avg. surface wind velocity & direction. Percentage frequency and avg. velocity (m.p.h.) of upper air winds.

Temperature (°F): Mean monthly & annual temps. with absolute extremes

Precipitation (inches): mean monthly and annual amounts.

Source No. 65, Continued.

Snowfall (inches): Mean monthly & annual.  
Ceiling height (ft.) & visibility (mi.)  
Dutch Harbor, Gambell, Nome, Point Barrow, St. Paul Island.

Source No. 66.

U. S. Department of Commerce, Arctic Engineering, , 1955, ,  
Docs. D 209.10: PW-11/C.2.  
Temperature (°F): Monthly and annual soil temps.  
Nome.

Source No. 67.

U. S. Weather Bureau, The Weather and Climate of Alaska, J. Murray Mitchell, 1958 (photostat), 1931-1952, AHRC Lib. QC 984.A4 Pam., U. S. Weather Bureau.  
Temperature (°F): Extreme max. & min. Avg. daily max. & min., warmest month - coldest month. Frequency max. temp. 70° or above, 32° or below. Frequency min. temp. 32° or below, 0° or below.  
Precipitation (inches): Avg. annual total pcpn., avg. annual snowfall, Max. observed monthly snowfall, frequency of measurable pcpn.  
Wind (m.p.h.): Prevailing direction, avg. annual speed, fastest mile.  
Clouds & fog: Mean cloudiness of clearest month (%) & month. Mean cloudiness of cloudiest month (%) & month. Frequency of dense fog.  
Yakutat.

Source No. 68.

, Alaskan Temperature Fluctuations & Trends: An analysis of recorded data, T. D. Hamilton, 1965, 1910-1962, SKNR.G. 600 A 69, AINA.  
Temperature (°F): Mean annual temps., Ketchikan, Alaska. Reduced to 8-year running means. Trends & net changes of mean annual temp., 1910-1960. Comparison of temp. fluctuations among the principal stations, 1910-1962. Movements of principal stations - movement date, horizontal and vertical shifts.  
Ketchikan, Nome, Point Barrow.

Source No. 69.

U. S. Weather Bureau (Weatherwise), The Weather & Circulation of 1950-1958 by months, , 1950-1958, , Geophysical Inst. Lib. QC 983 A2.  
Abstract: Monthly summary & analysis, especially for the United States, but including unusual situations in Alaska, Canada & other parts of the Arctic, & showing the north polar regions on pressure contour charts & frequency maps.  
Alaska.

Source No. 70.

U. S. Army Corps of Engineers, Climatology of the Cold Regions Northern Hemisphere II, C. Wilson, 1969, 1931-1960, Docs. D 103:33/7: 1-A3b. CRREL.

Heating degree day: Monthly & annual heating degree day normals, heating degree days (1931-1960).

Relative humidity (%): Monthly mean values of relative humidity. Mean no. of days with fog.

Precipitation (inches): Normals & extremes (Period 1921-50, or part of that period). Max. recorded rainfall (inches), month/day, year (1962-61).

Snowfall, Sleet (inches): Mean total (year), max. in a month, max. in 24 hours.

Windspeed (m.p.h.): Mean wind speed & direction, avg. wind speed - Dec., Jan., Feb.

Anchorage, Kotzebue, Nome, Point Barrow, Yakutat.

Source No. 71.

U. S. Weather Bureau (Monthly Weather Review), Frequencies of Selected Low Temperatures in Alaska, De Percin, F. & Falkowski, S., 1956, , QC 983 A2.

Temperature (°F): Mean, mean max., mean min., for Jan. & July. Frequency (%) of daily max. & daily min. temps. at or below specified values in January, July and annual.

Homer, Nome, Point Barrow, Umiat, Wrangell, Yakutat.

Source No. 72.

U. S. Army Quarter Research & Development Center, Tech. Rept. EP-6, Frequencies of Selected Low Temperatures in Alaska, F. De Percin & S. J. Falkowski, 1955, , Fort Wainwright Lib., U. S. WB, U. S. Air Force, U. S. Navy.

Temperature (°F): Mean temps. & length of records for Barrow monthly/annual. Length of climatic records (yrs.) of data used in computing frequencies. Frequency (%) of daily max. temp. at or below 68°F, 50°F, 32°F, 23°F, 14°F, 0°F, -25°F, -40°F. Frequency (%) of daily min. temp. at or below 50°F, 32°F, 23°F, 14°F, 0°F, -25°F, -40°F. Absolute max. & min. temps. and length of records.

Anchorage, Bethel, Barter Island, Cold Bay, Dutch Harbor, Homer, Juneau, Kotzebue, Ketchikan, Kodiak, Nome, Point Barrow, Point Hope, Sitka, St. Paul Island, Umiat, Wrangell, Yakutat.

Source No. 73.

U. S. Weather Bureau, Frequencies of Selected Low Temperatures in Alaska, DePercin, F., & Falkowski, S., 1956, , QC 983 A2

Temperature (°F): Mean, mean max.-January, July, mean min. Frequency (%) of daily max. & daily min temps at or below specified values for Anchorage - January, July & annual.

Anchorage, Ketchikan.

Source No. 74.

U. S. Coast & Geodetic Survey, U. S. Coast Pilot 9 Pacific & Arctic Coasts Alaska, Cape Spencer to Beaufort Sea., , 1964, 1961, SKNR VK 943 U7 Y3 7th ed. 1964.

Air temperature (°F): Normal, extreme. Surface water temperatures & salinities (0/00): Monthly mean.

Precipitation (inches): Normal total, max. in 24 hours.

Snow, sleet: Mean total.

Humidity (%): 8:00 a.m. local time, 2:00 p.m. local time.

Wind (knots): Mean speed, prevailing direction, max. speed & direction.

Percent of possible sunshine: mean sky cover sunrise to sunset - monthly

Mean no. of days: Sunrise to sunset - clear, partly cloudy, cloudy

Mean no. of days: Pcpn. .01" or more, snow, sleet 1.0" or more, thunderstorms, heavy fog.

Temperature (°F): Mean surface water temps. and salinities.

Anchorage, Bethel, Barter Island, Cordova, Cold Bay, Cape Spencer, Dutch Harbor, Juneau, Kotzebue, Ketchikan, Kodiak, King Salmon, Nome, Point Barrow, Sitka, Seward, St. Paul Island, Yakutat.

Source No. 75.

U.S.C.P., U.S.Coast Pilot S.E. Alaska Dixon Entrance to Yakutat Bay, , 1952, , SKNR.VK 1943 U7 D5.

Visibility (% of all observations): Monthly & annual.

Precipitation (inches): Mean amount, least amount, greatest amount. Max. in 24 hrs., mean no. of days 0.01" or more.

Air Temperature (°F): Mean, min: Extreme, 32° or less, mean no. of days. Max.: Extreme, 32° or less, mean no. of days.

Wind (% of all observations) (Knots): Seasonal.

Monthly mean Surface Water Temperatures: Monthly and annual.

Monthly Mean Sea Water Densities: Monthly and annual.

Annette, Cape Spencer, Juneau, Ketchikan, Sitka, Wrangell, Yakutat.

Source No. 76.

U. S. Coast & Geodetic Survey, Surface Water Temps.at Tide Stations, Pacific Coast, N. & S. America, Pacific Ocean Island, H. Arnold Karo, 1956, 1922-1955, Docs. C4.19: 280.

Surface water temperatures (°F): Table of monthly and annual means & extremes and mean temp. curves.

Cordova, Juneau, Ketchikan, Point Barrow, Sitka.

Source No. 77.

ESSA, Climatological Data Alaska - Annual Summary, , , 1965 - 1970, SKNR.QC 984 A4 W3.

Temperature (°F): Avg. temps & departures from normal.

Precipitation (inches): Total pcpn. & departures from normal.

Temperature extremes & freeze data:

Annette, Barter Island, Juneau, Sitka, Seward, Wainwright.

Source No. 78.

National Oceanic and Atmospheric Administration, Tide Tables High & Low Water Predictions 1972, , 1971, 1972, Docs. C 55.421; 972.

Daily tide predictions: Times & heights of high and low waters.

Mean and diurnal-tide ranges:

Mean tide level:

Tidal differences:

Height of tide at any time:

Anchorage, Cordova, Juneau, Ketchikan, Kodiak.

Source No. 79.

NOAA, Climate of the North Slope Alaska, H. W. Searby & M. Hunter, 1971, , IWR P.R. 2169.

Snowfall (inches): Mean monthly & max. snowfall. Mean no. of days with snowfall  $\geq 0.1$ "

Precipitation (inches): Mean monthly pcpn., mean no. of days with pcpn.  $\geq 0.01$ ", max. & min. monthly pcpn., max. in 24 hours.

Wind (knots): Percentage frequency of occurrence by speed groups. Wind direction & wind speed.

Ceiling height & visibility: Percentage frequency of occurrence.

Temperature extremes (°F): Monthly

Percentage Frequency of Occurrence of weather conditions.

Barter Island, Point Barrow.

Source No. 80.

U. S. Geological Survey, (Circular 626), Reconnaissance of Water Resources in the Haines-Port Chilkoot Area, Alaska, James A. McConaghy, 1970, 1960-1967, Docs. I 19.4/2: 626 c.2. Haines-Port Chilkoot Area. Records of wells near Haines, Alaska.

Quality of water analyses from wells and streams near Haines, Alaska.

Summary of groundwater availability in the Haines-Port Chilkoot area, Alaska

Haines-Port Chilkoot Area.

Source No. 81.

U. S. Geological Survey (Prof. Paper 696), Ground Water in the Permafrost Regions of Alaska, John R. Williams, 1970, , Docs. I 19.16: 696 c.2, Colville Valley (at Umiat).

Data on Permafrost and groundwater in the Colville Valley at Umiat.

Name & type of well or hole (ft.)

Total depth (ft.).

Depth to base of Permafrost (ft.).

Thickness of alluvium (ft.).

Groundwater occurrence and yield, results of formation tests.

Quality of water constituents in milligrams per liter.

Arctic Foothills of the Brooks Range, Colville Valley (at Umiat).

Source No. 82.

U. S. Army Material Command, Hydrology of a Drainage Basin on the Alaskan Coastal Plain, T. Brown, S. L. Dingman, R. I. Lewellen, 1968,

Source No. 82, Continued.

1963-1966, D 103.33/3; 240.

Water level (cm) and conductivity ( $\mu$ ) of ponds on Barrow watersheds '63 - '66.

Variation in rainfall amount (mm) & conductivity ( $\mu$ ) on the Barrow watershed, 1965.

Hydrography of the Barrow Quadrangle - Distribution of water bodies by area, distribution of lakes by elevation, length & width.

Description of watershed-cation composition of runoff water (meq/litre)

Climatic & hydrologic summary, Barrow - 1963 - 1966.

Evaporation and Pond levels - water chemistry - soil thaw.

Comparison of pcpn. data (mm), Barrow watershed 1964 - 1966.

Relationships of trace and total thaw season pcpn.

Runoff & pcpn. relationships, 1963 - 1966.

Measured pan evaporation 1965 and 1966, Barrow.

Point Barrow.

Source No. 83.

U. S. Geological Survey, Hydrology and the Effects of Increased Groundwater Pumping in the Anchorage area, R. M. Waller, 1964, 1947-1960, Docs. I 19.13: 1779D.

Precipitation (inches): Normal monthly, max. & min. monthly 1921-1950.

Temperature ( $^{\circ}$ F): Normal, daily max., daily min. 1921-1950.

Selected Chemical Analyses in parts per millions, of surface water in the Anchorage area, Alaska.

Chemical Analyses in parts/millions of groundwater from Anchorage city wells & Russian Jack Springs.

Water Utilization - Ship Creek supply, groundwater supply, City of Anchorage, Suburban & military (G.) Groundwater reservoir changes. Anchorage.

Source No. 84.

U. S. Geological Survey, A Review of Water Resources of the Umiat area, Northern Alaska, John R. Williams, 1970, , Docs. I 19.4/2: 636, U. S. Department of the Interior.

1. Subsurface data in the Umiat area: Name & type of well. Total depth (ft.). Thickness of alluvium (ft.). Depth to base of permafrost (ft.). Occurrence & yield of groundwater: Results of formation tests. Sources of information.

2. Analysis of Colville River water near Umiat: Chemical constituents; Milligrams/liter.

Umiat.

Source No. 85.

U. S. Geological Survey, Geology and Groundwater Resources of the Anchorage Area, Alaska, D. J. Cederstrom, F. W. Trainer, R. M. Waller, 1964, 1921-1950, Docs. I 19.13: 1773.

Precipitation: (in) Normal total, max. monthly, min. monthly - 1921-1950.

Source No. 85, Continued.

Temperature (°F); Normal, daily max. & min. 1921-1950.  
Composite stratigraphic column of the glacial drift.  
Chemical analyses of water in parts per million.  
Logs of representative wells in the Anchorage area.  
Anchorage.

Source No. 86.

U. S. Geological Survey, Effects of the March, 1964 Alaska Earthquake on the Hydrology of the Anchorage Area, Alaska, Roger M. Waller, 1966, 1963-1965, Docs. I 19.16: 544.  
Anchorage.

Source No. 87.

U. S. Geological Survey, Water Power Resources near Petersburg and Juneau, Southeastern Alaska, F. A. Johnson, 1962, 1916-1957, 19.13: 1529C.2., U. S. Department of the Interior.  
Precipitation (inches): Mean pcpn. at stations near sea level from Petersburg to Juneau. Monthly & annual pcpn. variability of annual pcpn. at Juneau.  
Snowfall (inches): Records for Juneau & Annex Creek.  
Temperature (°F): Monthly & annual temps.  
Juneau.

Source No. 88.

U. S. Geological Survey, Temperature & Chemical Water Quality from a Well Drilled Through Permafrost near Bethel, Alaska, Alvin J. Feulner & R. G. Schupp, 1964, 1962-1963, Docs. I 19.16: 501, U. S. Department of the Interior.  
Chemical analyses of water from wells near Bethel and from the Yukon and Kuskokwim Rivers.  
Temperature measurements made on January 21 & 22, 1963.  
Bethel.

Source No. 89.

U. S. Geological Survey, Hydrological Data, R. M. Waller & S. P. Mathur, 1962, 1957-1961, SKNR.GB 1025 A4 A15 No. 17., U. S. Dept. of the Interior  
Records of wells and test holes in the Nome area.  
Chemical analyses of ground water in the Nome area (in parts/million).  
Nome.

Source No. 90.

U. S. Weather Bureau Alaska Region, Climate Along a Pipeline From the Arctic to the Gulf of Alaska, H. W. Searby, 1968, , Docs. C 52.15/2: WB TM AR-2.  
Temperature (°F):  
Precipitation (inches):  
Wind (m.p.h.):  
Alaska

Source No. 91.

Alaska Department of Health, Ground Water Reconnaissance & Drilled Wells Studies in the Ketchikan Area, R. M. Waller, 1957, , SKNR.GB 1025 A4 A32 No. 3., Ketchikan Area.

Drilled Wells: Name, Location, Depth (feet), Static level (ft.), GPH, Depth cased (ft.), Date completed, Chemical analyses - well water (parts/million).  
Ketchikan area.

Source No. 92.

U. S. Geological Survey, Prof. Paper 414, Some Observations on the Hydrochemistry and Sedimentation on the Chamberlin Glacier Area, Alaska, F. H. Rainwater & H. P. Guy, 1963, 1958, Docs. I 19.16: 414. Chamberlin Glacier.

Approximate percentage makeup of channel flow 800 ft. downstream from Chamberlin Glacier, Alaska.

Sequential observations on water quality, Aug. 5 & 6, 1958, 800 ft. downstream from Chamberlin Glacier.

Comparison of the composition of sediment from Chamberlin Glacier with that of shales concentration in parts/million.

Saturation indexes of water samples of the Chamberlin Glacier area, Alaska, 1958.

Suspended-sediment concentration and discharge data for sequential observations, Aug. 5, 6, 1958, Chamberlin Creek, Alaska.

Relations of the concentration of suspended-sediment fractions to turbidity and water discharge, Chamberlin Glacier area.

Periodic observations of water quality, 800 ft. downstream from Chamberlin Glacier, Alaska.

Daily mean water & suspended-sediment discharge, Chamberlin Cr. 1958.

Water quality observations for major hydrologic environments, Chamberlin Glacier area, 1958.

Chamberlin Glacier.

Source No. 93.

U. S. Geological Survey (Prof. Paper 700-B), The Relationship Between Surface Water and Ground Water in Ship Creek near Anchorage, Alaska, Chapter B., John B. Weeks, 1970, 1959-1969, Docs. I 19.13: 700 B.

Ship Creek (near Anchorage).

Seepage Measurements (cfs): Ship Creek seepage measurements made at the Elmendorf Air Force Base gage and near Post Road, in cubic ft./sec.

Ship Creek (near Anchorage).

Source No. 94.

U. S. Geological Survey, Index of Surface-water Records to September 30, 1967, Alaska, H. P. Eisenhuth, 1968, , Docs. I 19.4/21: 585. Alaska West of Longitude 141°.

Drainage Area (sq. mi.)

Daily or monthly figures (calendar years).

Annual Peaks

Source No. 94, Continued.

Low-flow measurements (water years).

Alaska West, Snake River, S. E. Alaska Mainland Streams.

Source No. 95.

U. S. Geological Survey (Prof. Paper 475-B), Seasonal Changes in the Chemical Quality of Shallow Ground Water in Northwestern Alaska, A. J. Feulner & R. G. Schupp, 1963, 1961-1962, Docs. I 19.16: 475-B, Remote Site Near Bering Sea.

Mineral constituents in parts per million, and other characteristics of ground water at a site in Northwestern Alaska.

Figs: 1. Sketch map showing fault, spring, and water supply installations, datum mean sea level.

2. Changes in the chemical quality of the water during the period June 1961 to July 1962.

Cape Lisburne, Remote Site near Bering Sea.

Source No. 96.

U. S. Geological Survey, Compilation of Records of Surface Waters of Alaska, Oct. 1950 to Sept. 1960, , 1964, 1949-1960, Docs. I 19.13: 1740, Matanuska River (at Palmer).

Monthly & yearly mean discharge, in cubic ft./sec. 1951-1960.

Monthly & yearly discharge, in acre-feet 1951-1960.

Yearly discharge in cubic ft./sec. 1950-1960.

Maximum discharge, 1949-1960, Max. gage height observed, 1949-1960.

Fish Creek (near Ketchikan), Matanuska R. (at Palmer).

Source No. 97.

U. S. Geological Survey (Water Supply Paper 1779-A), Geologic Reconnaissance and Test-well Drilling, Cordova, Alaska, K. L. Walters, 1963, 1961, Docs. I 19.13: 1779-A, Cordova.

Log of test well 1: Material, thickness (ft.), depth (ft.)

(Drilled Sept. 11 - Oct. 11, 1961, by the Channel Drilling Co., Juneau Diameter, 6 inch).

Log of test well 2: Material, thickness (ft.), depth (ft.).

(Drilled Oct. 12 - 30 by the Channel Drilling Co., Juneau).

Chemical analyses of water, in parts per million, at Cordova, Alaska:

Field data, Physical data, Sample collected.

Cordova.

Source No. 98.

, Solar Radiation and Sunshine Duration Relationships in the N-Central Region and Alaska, D. G. Baker & D. A. Haines, 1969, 1952-1966, Forestry Science Lib. 111.211, North Central Regional Res. Tech. Bull. 262.

Solar radiation - sunshine correlations: Barrow-Nome, Bethel-Anchorage, Bethel-Nome, Fairbanks-Anchorage, Fairbanks-Nome, Matanuska-Anchorage, Matanuska-Juneau.

North America.

Source No. 99.

Headquarters Quartermaster Research and Engineering Command, Atlas of Surface Temperature Frequencies for N. America & Greenland, McGill University, 1961, , .  
North America.

Source No. 100.

Cold Regions Science & Engineering 1-A3a, Introduction Northern Hemisphere I, C. Wilson, 1967, , .

Abstract: A review summary of the climatological environment of the Northern Hemisphere contains a general introduction to the cold regions and a discussion of geographic controls and meteorological aspects including: 1) the hemisphere surface in terms of configuration and relief, vegetation zones and permanent and seasonal ice and snow; 2) the general circulation and weather system dealing with the circumpolar vortex, sea-level pressure and cyclonic frequency, circulation system persistence, and surface weather associated with high latitude pressures; 3) the net radiation and heat balance. Selected bibliographic reference are given.

Northern Hemisphere.

Source No. 101.

U. S. Army Natick Laboratories Tech. Rept. 70-45-ES, Weather Extremes Around the World, Pauline Riordan, 1970, , .

Abstract: This report consists of a map of world and continental weather extremes and a map of North American weather extremes, with comments on the reliability of the records shown. Included are highest and lowest temperatures, largest temperature ranges, greatest and least amounts of precipitation for various durations, maximum precipitation variability, greatest thunderstorm frequency, highest and lowest atmospheric pressure, highest solar radiation, largest hailstones, greatest snowfall, highest wind speed, highest humidity, and most frequent occurrence of dense fog. Both the absolute extreme and the most extreme annual average are given for most of the elements. As far as possible, the records are taken from official sources, and all of them are documented. Conditions of site, instrumentation, observational procedure, and other factors pertinent to the reliability of extremes are discussed.

Northern Hemisphere.

Source No. 102.

U. S. Army Material Command, U. S. Army CRREL Topographic Map, Barrow, Alaska, J. Brown and P. L. Johnson, 1966, 1964, SKNR.GB 2301 U533.

Topographic Map.  
Point Barrow.

Source No. 103.

CRREL, U. S. Army, Ice Thickness Observations, North American Arctic and Subarctic 1964-65, 1965-66, M. A. Bilello and R. E. Bates, 1969, 1964-1966, SKNR GB 2301 U 533.

Ice Thickness: In inches and cm., 1964, 1965, 1966.

Snow Depth: In inches and cm., 1964, 1965, 1966.  
Point Barrow.

Source No. 104.

U. S. Army Material Command, Survey of Arctic & Subarctic Temperature Inversions, M. A. Bilello, 1966, 1953-1961, SKNR GB 2401 U53, CRREL.

Inversions: (9 year record) Type 1 (base of the inversion at the earth's surface--No. of soundings, No. of inversions (at surf.), Frequency of occurrence (%), Avg. thickness (m), Std. deviation, Avg. temp. gradient ( $^{\circ}\text{C}/100\text{m}$ ), Std. devi., Avg. temp. at base ( $^{\circ}\text{C}$ )). Type 2 (base of the inversion above the earth's surface)-  
- No. of soundings, No. of inversions (above surf.), Frequency of occurrence (%), Avg. height of base above surface (m), Std. devi., Avg. Thickness (m), Std. deviation, Avg. temp. gradient ( $^{\circ}\text{C}/100\text{m}$ ), Std. deviation, Avg. temp. at base ( $^{\circ}\text{C}$ )).

Frequency of inversion occurrence in terms of thickness and temp. gradient, for two 6-month periods.

Yakutat.

Source No. 105.

, Microclimatic Investigations at Point Barrow, Alaska, 1957-1958, J. R. Mather, C. W. Thornthwaite, 1958, 1957-1958, Tundra Biome Office.

Heat-flux ( $\text{cal}/\text{cm}^2 \text{ Hr.}$ ), evaporation ( $\text{cm}/\text{Hr.}$ ), Evaporative Heat-flux ( $\text{cal}/\text{cm}^2$ ): Convective heat-flux, evaporative heat-flux, soil heat-flux, net radiation (all values in Langleys/day). Comparison of measured and computed evapotranspiration ( $\text{cm}/\text{day}$ ).

Avg. daily heat balance ( $\text{Ly}/\text{day}$ ): Dew point temperature ( $^{\circ}\text{C}$ ), Evaporation ( $\text{cm}/\text{Hr.}$ ), Evaporative heat-flux ( $\text{Ly}/\text{Hr.}$ ), Weekly values of evapotranspiration from small soil filled tanks in (mm).

Heat Budget computations: Vel. diff. ( $\text{cm}/\text{sec.}$ ), temp. diff. ( $^{\circ}\text{C}$ ), humidity diff. (Mb), convective heat flux ( $\text{cal}/\text{cm}^2 \text{ Hr.}$ ), evaporation ( $\text{cm}/\text{Hr.}$ ), evaporative heat flux ( $\text{cal}/\text{cm}^2 \text{ Hr.}$ ).

Solar Radiation ( $\text{Ly}/\text{Hr.}$ )

Hourly micrometeorological observations: Air-soil temperature ( $^{\circ}\text{C}$ ), Vapor Pressure (Mb), Wind Velocity ( $\text{cm}/\text{sec.}$ ) and Wind Direction.  
Point Barrow.

Source No. 106.

, Radiative Regime over Arctic Tundra, B. J. Lieske and L. A. Stroschein, January, 1968, 1964, U. S. Tundra Biome Office.

Incoming Short Wave Radiation (Q) - Half Hourly Means of Radiative Flux Density,  $\text{mW cm}^{-2}$ .

Incoming Long Wave Radiation (E) - Half Hourly Means of Radiative Flux Density  $\text{mW cm}^{-2}$ .

Source No. 106, Continued.

Net Total Radiation (B) - Half Hourly Means of Radiative Flux Density,  $\text{mW cm}^{-2}$ .

Incoming Short Wave Radiation (Q) - Daily Energy Sums,  $\text{J cm}^{-2}$ .

Incoming Long Wave Radiation (E) - Daily Energy Sums,  $\text{J cm}^{-2}$ .

Net Total Radiation (B) - Daily Energy Sums,  $\text{J cm}^{-2}$ .

Radiative Energy Sums,  $\text{J cm}^{-2}$ .

Mean Daily Q    Mean Daily E    Mean Daily B

Monthly    Q    Monthly    E    Monthly    B

Comparison of Solar Radiation Measurements with U. S. Weather Bureau Data, Expressed as: Barrow Q/North Meadow Lake Q - mean daily, monthly, days compared.

1964 Air Temperatures at Barrow USWB Station and at North Meadow Lake,  $^{\circ}\text{C}$ .

Incoming Long Wave Radiation with Clear Sky - Monthly Means in  $\text{mW cm}^{-2}$ . Point Barrow.

Source No. 107.

, Environmental Atlas of Alaska, P. R. Johnson & C. W. Hartman, 1969, .

Abstract: This atlas gives an overall picture of many aspects of physical Alaska. A great deal of general information about the state has been available but it has been widely scattered and there has been a need to collect and present it as a unit. Maps are used as the primary means of presenting information but a text and some tables are used to highlight and amplify them. Much of the material in this atlas was obtained directly from published sources. In other cases, published information has been further developed to provide the necessary information and detail. Although the sources have been given, this is not a bibliography and the list of references is not intended to be complete.

Alaska.

Source No. 108.

U. S. Geological Survey, The Role of Ground Water in the National Water Situation, C. L. McGuinness, 1963, , 19.13: 1800.

Ground water resource

Water supply problems.

Prospects and needs.

Alaska.

Source No. 109.

U. S. Geological Survey, Galleries & Their Use for Development of Shallow Ground-water Supplies with special Reference to Alaska, A. J. Feulner, 1964, , Docs. I 19.13: 1809 E.

Types of galleries and their installation: French drains, Lateral Galleries, Vertical Galleries, Bedrock Galleries.

Gallery maintenance - cleaning & prevention of freezing.

Gallery use in Alaska.

Source No. 109, Continued.

Areas of continuous and discontinuous permafrost.  
Areas of sporadic or no permafrost and conclusions.  
Alaska.

Source No. 110.

, Freshwater Plankton Crustacea of the Colville River Area,  
Northern Alaska, Edward B. Reed, 1962, SKNR G 600 A 69.  
Air and Surface temps. (°C) for some lakes, ponds and pools of the  
Colville River drainage in the months of June, July & Aug.  
Ionic Composition in Parts/million of some lakes, ponds & pools of  
the Colville River drainage.  
Quality of dissolved oxygen in parts/million for some lakes, ponds,  
and pools of Colville River drainage.  
The number of occurrences of different species of copepods in 3  
habitats of the Colville River.  
The number of occurrences of different species of copepods in  
different habitats along the Colville River expressed as per-  
centage of the total no. of collections from each habitat.  
Species associations of calanoid & cyclopid copepods in 125 lakes,  
pools, and ponds of the Colville River drainage.  
Alaska.

Source No. 111.

U. S. Weather Bureau, Probable Maximum Precipitation and Rainfall-  
Frequency Data for Alaska, John F. Miller, 1963, 1941-1961, Docs.  
C 30.28: 47.

Precipitation (inches): Max. observed pcpn. - seasonal distri-  
bution of max. pcpn. - meteorological situations associated  
with heavy pcpn. - moisture adjustment of storm pcpn. -  
pcpn.-moisture ratio (P/M) - computation of PMP chrono-  
logical distribution - appraisal.

Rainfall-Frequency Data (inches): Basic data - frequency analysis=  
isopluvial maps - smoothing data read from the maps - depth-area  
relationships seasonal variation.

Alaska.

Source No. 112.

U. S. Geological Survey, Estimated Use of Water in the United States,  
1960, K. A. McKichan & J. C. Kammerer, 1961, 1960, Docs. I 19.4/2: 456.

1. Water used for Public Supplies, by Alaska 1960: population  
served, water delivered, water consumed (mgd).
2. Water for rural use, by Alaska, 1960 (million gallons/day) & by  
regions: domestic use, livestock use, consumed.
3. Water withdrawn for air conditioning & water used for water power,  
1960.
4. Water used for irrigation, by Alaska, 1960 & by regions.
5. Summary of water withdrawn except for water power, by Alaska and  
by regions.
6. Self-supplied industrial water, by Alaska, 1960 & by regions,  
1960.

Source No. 112, Continued.

7. Water used for public utility generation of fuel electric power, by Alaska, 1960.  
Alaska.

Source No. 113.

U. S. Army, CRREL, Research Rept. 188., Soils of the Okpilak River Region, Alaska, Jerry Brown, 1966, , CRREL.

Abstract: Concepts of arctic pedology are applied to the glaciated and unglaciated terrains in the vicinity of the Okpilak River, northeastern Alaska. The manifestations of frost action in arctic soils are considered under two general forms: (1) the surficial configurations or patterned ground and (2) the morphological characteristics of the seasonally thawed soil and the upper zone of the perennially frozen ground. Approximately 55 types of soil conditions and surface features are described and mapped in an area encompassing both the northern Brooks Range and the southern Foothill Provinces.

North America.

Source No. 114.

Headquarters Quartermaster Research and Engineering Command, Temperature and Wind Frequency Tables for N. America and Greenland Vol. I, January-June, McGill University, 1960, , .  
North America.

Source No. 115.

U. S. Weather Bureau, Average Annual Solar Radiation per Day Over Northern North America, MacDonald, T. H., , Geophysical Institute Lib. Monthly Weather Review.  
Covers Greenland, Canada & United States including Alaska. Distribution of solar radiation is mapped in Langleys (gm.-cal./cm<sup>2</sup>) per day. Radiation observing stations are indicated.

North America.

Source No. 116.

Headquarters Quartermaster Research and Engineering Command, Temperature & Wind Frequency Tables for N. America & Greenland, Vol. II, July - December, McGill University, 1960, , .  
North America.

Source No. 117.

, Temperature and Wind Frequency Tables for N. America & Greenland, Vol. I - Jan.-June, Vol. II - July-Dec., , 1960, , .  
North America.

Source No. 118.

Quartermaster Research and Engineering Center, Tech. Rept. EP-143, A Method of Predicting the Frequency Distribution of Windchill, Jane Howe Westbrook, 1961, , .  
Abstract: Eight years of simultaneous recordings of January temperature & windspeed from 20 N. American stations are used in the development of a method for predicting the percentage of the

Source No. 118, Continued.

time windchill will lie above or below a given value. A windchill prediction chart is constructed. It combines the Siple nomogram, used to derive the windchill index based on avg. temperature and windspeed, and the prediction model based on the windchill frequencies. Predicting errors (range 0-240 windchill units, with avg. of 52) produce a skewed distribution with 64 percent of the errors less than the avg. Errors greater than avg. are concentrated between the 5th and 30th and beyond the 95th percentiles. Magnitude of error increases as the index increases.

The reliability of the prediction chart is tested by frequency records from 34 additional stations. Deviations of actual windchill values from the predictions are, on the avg., 20 windchill units greater than deviations in the model. The same general pattern of error deviation is observed.

North America.

Source No. 119.

Air Force Cambridge Research Laboratories, Duration of Cold Temperature over N. America, Tattelman, 1968, , Docs. D 301.45/39: 286.

Figures: 1. Stations used in determining temp. durations.

2. Expected longest duration (days) of temp.  $\leq 32^{\circ}\text{F}$  during a single winter season.
3. Longest duration (days) of temp.  $\leq 32^{\circ}\text{F}$  in 10 winters.
4. Expected longest duration (Hrs.) of temp.  $5^{\circ}\text{F}$  during a single winter season.
5. Longest duration (9Hrs.) of temp.  $\leq 0^{\circ}\text{F}$ ,  $-10^{\circ}\text{F}$ ,  $-20^{\circ}\text{F}$ ,  $-30^{\circ}\text{F}$ ,  $-40^{\circ}\text{F}$ ,  $-50^{\circ}\text{F}$ ,  $-60^{\circ}\text{F}$ .
6. Expected longest duration (Hrs.) of temp.  $\leq 0^{\circ}\text{F}$ ,  $-10^{\circ}\text{F}$ ,  $-20^{\circ}\text{F}$ ,  $-30^{\circ}\text{F}$ ,  $-40^{\circ}\text{F}$  during a single winter season.

North America.

Source No. 120.

, 24-Hour Duration of Low Temperatures in Northern America, Hogue, D. W. & others, 1963, 1962, , Alaskan Sci. Conf. 1962.

Abstract: Maps and discusses isotherms of low temp. duration, based on daily max. Jan. temps. during 1945-1960 at weather stations in the U. S. including Alaska, & in Canada. Effects of water bodies, latitude, solar radiation & relief are considered. At high latitudes the lowest temps. & longest periods of cold occur in low-lying areas where cold collects. Areas of  $-50^{\circ}\text{F}$ . are delimited in Interior Alaska & Yukon, northwest of Hudson Bay & interior Ellesmere Island, and of  $-60^{\circ}\text{F}$  in the Yukon and Tanana Valleys & the Brooks Range. Data from the Greenland Icecap (not mapped) indicate  $-60^{\circ}\text{F}$ . occurs over much of that area.

North America.

Source No. 121.

, Some Observations of Soil Temperature at Barrow, Alaska, H. W. Bernard, J. J. Kelley, Jr., , 1962, , Tundra Biome Off. Soil Temperature: Green Grass, Dry Grass, Gravel, Pond, July-Dec. Point Barrow.

Source No. 122.

, Radiation Regime Over Arctic Tundra and Lake, 1966, D. F. Weaver, May, 1970, 1966, Tundra Biome Office (ESSA-USWB).  
Temperature (°C): Monthly and annual temps.  
Precipitation (cm): Monthly and annual pcpn.  
Wind (m.p.s.): Monthly and annual.  
Cloud (tenths): Monthly and annual.  
Comparison of global short-wave radiation with ESSA-USWB at Barrow and North Meadow Lake.  
Daily avg. albedo over tundra and lake, Barrow.  
Mean daily and monthly cloudiness, tenths.  
Point Barrow.

Source No. 123.

, Radiative Regime Over Arctic Tundra, B. J. Lieske and L. A. Stroschein, January, 1968, 1964, Tundra Biome Office, Dept. of Atmospheric Sci., Univ. of Wash., Scientific Report.  
Comparison of Solar Radiation Measurements with U. S. WB Data, Expressed as: Barrow Q/North Meadow Lake Q.  
Mean Diurnal Temperature Range, 1964, Barrow USWM Station (°C).  
Mean daily cloudiness, tenths.  
Point Barrow.

Source No. 124.

, Radiation Regime Over Arctic Tundra and Lake, 1966, D. F. Weaver, May, 1970, 1966, Tundra Biome Office.  
Ambient air temp. regime (°C).  
Monthly radiation totals over tundra and North Meadow Lake, joules  $\text{cm}^{-2}$ .  
Daily average temperature (°C).  
Incoming Short Wave Radiation - Daily Sums, joules  $\text{cm}^{-2}$ .  
Net Total Radiation over Tundra - Daily Sums, Joules  $\text{cm}^{-2}$ .  
Net Total Radiation over Lake - Daily Sums, Joules  $\text{cm}^{-2}$ .  
Net Short-Wave over Tundra - Daily Sums, Joules  $\text{cm}^{-2}$ .  
Net Total/Short-Wave Radiation over Lake, Daily Sums, Joules  $\text{cm}^{-2}$ .  
Net/Reflected Short-Wave over Tundra, Daily Sums, Joules  $\text{cm}^{-2}$ .  
Reflected Short-Wave Over Lake - Daily Sums, Joules  $\text{cm}^{-2}$ .  
Albedo over Tundra, Daily Average in Per Cent.  
Albedo over Lake - Daily Average in Per Cent.  
Diurnal Variations - Hourly Means.  
Point Barrow.

Source No. 125.

U. S. International Biological Program, Mathematical Modeling and Validation of the Thermal Regimes in Tundra Soils, Barrow, Alaska, Y. Nakano and J. Brown, July, 1971, 1970, Tundra Biome Office, (IBP) U. S. Tundra Biome Rept. 71-5.  
Abstract: Efforts were made to develop a mathematical model of the thermal regimes in tundra soils. The results of field investi-

Source No. 125, Continued.

gations during the summer and fall of 1970 in the vicinity of Barrow, Alaska were used for validation of the model. Accuracy in simulating the field observations by the model is found satisfactory. Effects of important factors affecting the thermal regime are also discussed. Point Barrow.

Source No. 126.

, U. S. IBP Analyses of Ecosystems Program Interbiome Abstracts, Volume I, Number 4 - IPB Tundra Biome Barrow Intensive Site Description, J. Brown and G. West, August 1, 1971, 1970,  
Watershed: (evaporation pan, air temperature).  
Point Barrow

Source No. 127.

, U. S. IBP Analyses of Ecosystems Program Interbiome Abstracts, Volume I, No. 4-Tundra Microclimates -- Snow Cover, G. Wendler, C. Benson, G. Weller and D. Trabant, August, 1971, 1970,  
Snow Depth (cm):  
Temperatures (°C):  
Snow Density (g/cc):  
Conductivity (mmhos/cm):  
Water equivalent (cm):  
Point Barrow.

Source No. 128.

, The Variation of CO<sub>2</sub> Under the Snow in the Arctic, J. J. Kelley, Jr., D. F. Weaver, B. P. Smith, 1967, 1965-1966, Tundra Biome Office, Dept. of Atmospheric Sci., Univ. of Washington.  
Abstract: Atmospheric CO<sub>2</sub> was monitored continuously by infrared analysis near Barrow, Alaska, from September, 1965 to July, 1966. The purpose of these measurements was to determine the fluctuations of CO<sub>2</sub> under the snow cover. Avg. daily surface values of CO<sub>2</sub> as measured at the tundra surface increased a few days after the first snowfall. High and variable values occur until early Dec. and then decreased to lower, relatively stable, concentrations that persisted to early May. At that time, the CO<sub>2</sub> concentrations under the snow increased until the snow left the tundra in late June. Tundra surface temp. & wind speed four meters above the ground near the study area were monitored simultaneously with the CO<sub>2</sub> measurements. There was a general positive correlation between surface temp. & CO<sub>2</sub> and an inverse relationship with wind speed.  
Point Barrow.

Source No. 129.

, The Energy Balance & Temp. Regime Near the Arctic Tundra Surface, J. J. Kelley, Jr., & D. F. Weaver, 1968, 1966, Tundra Biome Office, Dept. of Atmospheric Sci., Univ. of Wash. Scientific Report.  
Soil Temperature (°C):  
Net Radiation (Joules CM<sup>-2</sup>):

Source No. 129, Continued.

Cloud Cover (%):  
Point Barrow.

Source No. 130.

, U. S. IBP Analyses of Ecosystems Program Interbiome Abstracts,  
Volume I, No. 4 - Tundra Microclimates -- Micrometeorology, G.  
Weller, C. Benson, D. Trabant, G. Wendler, August 1, 1971, 1970,

Wind Velocity (m/sec., degrees):  
Radiation (cal/cm\*\*2/min.):  
Light extinction (percent):  
Air-soil-canopy temperature (°C):  
Point Barrow.

Source No. 131.

, Water Supply Problems at Point Barrow, W. L. Boyd & J. W.  
Boyd, 1959, 1957, TC1 A35, American Water Works Association.  
Point Barrow.

Source No. 132.

, A Pedologic Study of Arctic Coastal Plain Soils near Barrow,  
Alaska, James V. Drew, 1957, , SKNR. S599 A4 D77.  
Arctic Soils in Alaska  
An approach to the study of Alaskan Arctic Coastal Plain soils.  
The major genetic soils  
Polygon classification near Point Barrow  
Soils of the Barrow area  
Soil mapping studies near Point Barrow.  
Results of soil mapping studies.  
Rate and depth of thaw in the major genetic soils near Barrow.  
Point Barrow.

Source No. 133.

CRREL, U. S. Army, Ground Temperature Observations, Barrow, Alaska,  
G. W. Aitken, 1965, 1947-1956, .  
Ground Temperature  
Soil Data.  
Point Barrow.

Source No. 134.

U. S. Army Material Command, Pedo-Ecological Investigations Barrow,  
Alaska, Jerry Brown, Philip L. Johnson, 1965, 1963, D 103.33: 159.  
Solar radiation (Langleys per day): Shortwave, incoming radiation  
was recorded at the Elson Lagoon Station (1) and the beach  
ridge Station (5).  
Temperature (°C): Max. & min. air temps. at ground level.  
Wind (km/hr.): Mean daily wind values.  
Precipitation (mm): Comparison of pcpn. between microclimatic stations  
and the U. S. Weather Bureau, Summer.  
Frequency of frost (%): Classification & frequency of frost features-

Source No. 134, Continued.

vegetation, percentage bare soil exposed.  
Point Barrow.

Source No. 135.

CRREL, U. S. Army, Ice Thickness Observations, North American Arctic and Subarctic, 1962-63, 1963-64, 1964-65, 1965-66, Pt. III, M. A. Bilello & R. E. Bates, 1966, 1969 respectively, 1962-1966, SKNR.GB  
Ice Thickness (in., cm.): 1963, 1964, 1965, 1966.  
Snow Depth (in., cm.): 1963, 1964, 1965, 1966.  
Barter Island.

Source No. 136.

U. S. Army Material Command, Ground Temperature Observations, Kotzebue Alaska, G. W. Aitken, 1965, 1947-1958, Docs. D 103.33: 108.  
Air Temperature (°F): Mean annual, recorded high & recorded low.  
Ground Temperature (°F): Max., min. & avg. observed first day of month, 1947-1958. Ground temps. °F, recorded first day of month.  
Precipitation (inches): Mean annual, max. annual & max. monthly.  
Air freezing index (degree days F. below 32): Avg., max. & min.  
Air thawing index (degree days F. below 32): Avg., max. & min..  
Avg. date start freeze season & thaw season.  
Avg. length of freeze season & thaw season, snow cover (inches) 1st day of month for 1952-1958.  
Kotzebue.

Source No. 137.

CRREL, U. S. Army, Ice Thickness Observations, North American Arctic and Subarctic, 1962-63, 1963-64, 1964-65, 1965-66, M. A. Bilello and R. E. Bates, 1966, 1969, 1962-1966, SKNR.GB 2301 U533.  
Ice Thickness (in., cm.): 1963, 1964, 1965, 1966, 1962  
Snow Depth (in., cm.): 1963, 1964, 1965, 1966, 1962  
Bethel.

Source No. 138.

CRREL, U. S. Army, Ice Thickness Observations, North American Arctic and Subarctic, 1962-1963, 1963-64, Part III, & 1964-1965, 1965-66. M. A. Bilello & R. E. Bates, 1966, 1969 respectively, 1962-66, SKNR.GB 2301 U533.  
Ice Thickness (in., cm.): 1963, 1964, 1965, 1966.  
Snow Depth (in., cm.): 1963, 1964, 1965, 1966  
Kotzebue.

Source No. 139.

, Water Supply in Alaska, Amos J. Alter, 1950, , TC-1 A35., American Water Works Association.

Abstract: The water supplies of Alaska are largely from surface sources, although many wells and some springs are also used. Inadequate or unsafe supplies in many parts of the territory

Source No. 139, Continued.

have retarded industrial development and caused illness. A better understanding of arctic and subarctic water supply needs promises a much brighter future.

Alaska.

Source No. 140.

, A summary of Water-Supply Problems in Alaska, M. V. Marcher, 1965, , Alaskan Science Conference.

Abstract: Discusses the problems of turbidity, freezing, high chemical concentrations & permafrost in the context of the human utilization of surface & ground water. The rock flour content in streams of glacial origin commonly exceeds 2,000 ppm. In the north, permafrost may extend to 1,300 ft. and the ground water beneath lakes however, unfrozen aquifers frequently occur. The problems of corrosion due to high oxygen content and contamination by organic material are mentioned. Many Alaskan settlements are coastal and the salinity of their water supply is a serious problem. The high cost of both desalination and snow ice melt as water sources is emphasized. Low temp. conditions are conducive to prolongation of the life of pathogenic bacteria, hence a serious danger of pollution exists.

Alaska.

Source No. 141.

U. S. Weather Bureau, The Climates of Alaska, E. M. Fitton, 1930, , Forestry Science Lib. 111.8 (798). Monthly Weather Review, Vol. 58, No. 31.

Temperature: Mean annual, absolute, mean January & July temp. Mean sea level pressure & wind roses, January & July, pressure in inches, wind frequency one-half inch = 25%.

Precipitation: Mean annual, mean monthly pcpn.

Mean annual snowfall.

Alaska.

Source No. 142.

, World Maps of Climatology, H. E. Landsberg, H. Lippmann, Kh. Paffen, 1965, , AHRC Lib. QC 982.5R64W. Springer-Verlag New York, Inc.

Alaska.

Source No. 143.

U. S. Weather Bureau, 2 to 10 day Precipitation for Return Periods of 2 to 100 years in Alaska, John F. Miller, 1965, 1943-1962, Docs. C 30.28: 52.

1. Basic Data: Summarization of data - Period & length of record - Station exposure.

2. Duration analysis: n-hour vs. observational-day Pcpn. - duration - interpolation diagram.

3. Frequency analysis: 2 types of series - frequency considerations-

Source No. 143, Continued.

retwin - period diagram - secular trend.

4. Isopluvial maps: Relation between 2-year 24- and 240-hour amounts - Smoothing of isopluvial maps - 2-year 10-day map - Ratio of 100-year to 2-year values - 100-year 10-day map - 22 additional maps - Reliability of results - Smoothing values read from maps.

Alaska.

Source No. 144.

Research Paper PNW-71, PNW Forest and Range Experiment Station, Potential Evapotranspiration and Climate in Alaska by Thornthwaite's Classification, J. H. Patric & P. E. Black, 1968, , SKNR.SD 11 A45614 No. 71.

Temperature (°F): Mean annual.

Precipitation (inches): Mean annual.

Potential evapotranspiration (inches):

Actual evapotranspiration (inches):

Surplus Pcpn. - Potential evapotranspiration (inches):

Index of humidity:

Index of aridity:

Moisture index:

Summer need & climatic type<sup>2</sup>/.

Alaska.

Source No. 145.

Geophysical Institute, U. of Ak., (IBP Tundra Biome Program), Tundra Biome Research in Alaska. The Structure and Function of Cold-Dominated Ecosystems, J. Brown and G. C. West, 1970, 20 June 1970, Geophysical Institute Lib.

Wind Speed (M Sec<sup>-1</sup>):

Wind Direction (deg.):

Air Temperature (°C):

Soil Temperature (°C):

Radiation (ly min.<sup>-1</sup>):

Incoming Short Wave Radiation, 10-day means (cal/cm<sup>2</sup> day):

Reflected Short Wave:

Net Radiation (balance):

Precipitation (mm):

Evaporation (mm):

Point Barrow.

Source No. 146.

U.S. IBP Analyses of Ecosystems Program Interbiome Abstracts Vol. I, No. 4 - Soil Moisture and Temperature Profiles in Arctic Tundra Soils, P. L. Gersper, R. J. Arkley, August 1, 1971, 1970, .

Soil moisture (ohms):

Soil temperature (°C):

Soil moisture-temperature profiles

Point Barrow.

Source No. 147.

Geophysical Institute, U. of Ak., (IBP Tundra Biome Program), The Structure and Function of the Tundra Ecosystem, 1971, 1971, Geophysical Institute Lib.

Wind Speed (M/sec.):

Wind direction (degrees):

Temperature ( $^{\circ}$ C):

Dew Point Temperatures:

Radiation ( $\text{cal./cm}^{*2}$  - Min.)

Point Barrow.

Source No. 148.

Center for the Environment and Man Organization (IBP Tundra Biome Program), Simulations of Meteorological Variation Over Arctic Coastal Tundra Under Perturbed Physical Interface Conditions, N. W. Lord, J. P. Pandolfo, and M. A. Atwater, July 1971, 1958-1962, 1970, Tundra Biome Office.

Abstract: Meteorological properties of the tundra are treated within the context of a general ecosystem model. The biosphere is placed in the role of an active interface within a stack of horizontally uniform physical layer under the influence of incident solar radiation as a demonstrably dominant exogenous state variable. Diurnal variation of the thermodynamic states of these physical layers is calculated as the solution of differential equations governing the diffusion of heat and moisture. The results of numerical experiments then demonstrate that atmospheric moisture and temperature, during the biotically active summertime, are influenced by the meteorological experience of the immediately preceding spring via the summertime level of the permafrost boundary to a degree that is at least comparable to the effect of daily fluctuations in cloud cover and prevailing winds.

Point Barrow.

Source No. 149.

, Radiative Energy Exchange over Arctic Land and Sea. Part 1, Data 1962, J. J. Kelley, Jr., D. T. Baily and B. J. Lieske, 11/1964, 1962, Tundra Biome Office.

Hourly Means of Radiative Flux Density by Day,  $\text{mW cm}^{-2}$  by day and month.

Daily Energy Sums in Joules  $\text{cm}^{-2}$  by day and month.

Point Barrow.

Source No. 150.

, Radiation Regime Over Arctic Tundra, 1965, D. F. Weaver, 1969, 1965, U. S. Tundra Biome Office.

Ambient Air Temperature Regime ( $^{\circ}$ C).

Radiation Totals, Joules  $\text{cm}^{-2}$  and Kcal  $\text{cm}^{-2}$

Daily Average Temperature in  $^{\circ}$ C

Total Global Radiation (Q + E) - Daily Energy Sums,  $\text{J cm}^{-2}$

Source No. 150, Continued.

Incoming Short/Long Wave Radiation (Q) - Daily Energy Sums,  $J\ cm^{-2}$

Net Total Radiation (B) - Daily Energy Sums,  $J\ cm^{-2}$

Half-hourly, daily, and monthly radiation values for net total, total global and global short-wave radiation.

Daily average cloud cover.

Daily average albedo values

Point Barrow.

Source No. 151.

, Radiation Regime over Arctic Tundra, 1965, D. F. Weaver, January, 1969, 1965, Tundra Biome Office.

Mean Daily and monthly cloudiness, tenths.

Abstract: The annual sums of the various radiation components near Point Barrow, Ak. in 1965 were 322 kJoules  $cm^{-2}$  for global short-wave radiation, 794  $kJ\ cm^{-2}$  for atmospheric back radiation, 185  $kJ\ cm^{-2}$  for reflected short-wave radiation and 870  $kJ\ cm^{-2}$  for terrestrial outgoing radiation. Net total radiation for the year was 22  $kJ\ cm^{-2}$ . Monthly avgs. of albedo varied from 18% for July to 83% for March.

The average temp. for the year was 13.0°C. The absolute min. was -44.3°C and the absolute max. 16.4°C. The coldest month was Feb. with an avg. temp. of -33.7°C. Aug. was the warmest month with an avg. temp. of 3.5°C

Half-hourly, daily, and monthly radiation values for net total, total global and global short-wave radiation, daily avg. cloud cover albedo values, and ambient air temp. avgs. and extremes are presented.

Point Barrow.

Source No. 152.

, An Analysis of Carbon Dioxide in the Arctic Atmosphere at Point Barrow, Ak., J. J. Kelley, Jr., 1964 (May), 1961-1962-1963, Tundra Biome Office.

Abstract: The results of measurements of carbon dioxide in air at Point Barrow, Alaska, and the principle of operation of the infrared gas analyzer are described. Reference gas comparison data are given in tables, and the method of calculations discussed. The average daily concentrations of atmospheric carbon dioxide are tabulated for the period 10 July 1961 to 20 Feb., 1963. The diurnal variations of carbon dioxide during this period are also presented. Results of the analyses of carbon dioxide in air collected in flasks from several other Alaskan locations are given.

Point Barrow.

Source No. 153.

, U.S. IBP Analyses of Ecosystems Program Interbiome Abstracts Vol. I, No. 4 - Seasonal and Daily estimates of Total Visible Radiation and Comparisons of Spectral Quality, L. L. Tieszen, August 1, 1971,

Source No. 153, Continued.

1970,

Visible radiation (400-750 nm):

Spectra (erg/cm<sup>2</sup>-min. for 25 nm intervals):

Point Barrow.

Source No. 154.

, Microclimatic Investigations at Point Barrow, Ak., 1956, J. R. Mather, C. W. Thornthwaite, 1956, 1956, Tundra Biome Office.

Temperature (°F): Max., min., and mean temps.

Precipitation (cm):

Wind Velocity (m.p.h.) & Wind Direction:

Radiation (ly):

Potential Evaporation (cm):

Convective & Evaporative heat flux and measured and computed evapo-transpiration.

Hourly Micrometeorological observations: Air and Soil temp. (°C)-

Permafrost:

Vapor Pressure (mm):

Wind Velocity (cm/sec.):

Head Budget computations:

Vel. diff. (cm/sec.), temp. diff. (°C), Humidity diff. (mm), convective.

Point Barrow.

Source No. 155.

, U. S. IBP Analyses of Ecosystems Program Interbiome Abstracts Vol. I, No. 4 - The Effects of Mechanical Disturbance Upon an Arctic Tundra Ecosystem, J. L. Challinor, P. L. Gersper, Aug. 1, 1971, 1970, IBP.

Soil Temperature (°C):

Soil Moisture (%):

Depth of thaw (cm):

Point Barrow.

Source No. 156.

, U.S. IBP Analyses of Ecosystems Program Interbiome Abstracts Vol. I, No. 4 - Soil Temperature Profiles in Arctic Tundra Soils, P. L. Gersper, R. J. Arkley, Aug. 1, 1971, 1970,

Soil Temperature (°C):

Soil Temperature profiles:

Point Barrow.

Source No. 157.

, U.S. IBP Analyses of Ecosystems Program Interbiome Abstracts Vol. I, No. 4 - Forest Microclimates - Micrometeorology, G. Weller, August 1, 1971, 1970,

Soil Temperatures (°C):

Point Barrow.

Source No. 158.

, U.S. IBP Analyses of Ecosystems Program Interbiome Abstracts

Source No. 158, Continued  
Vol. I, No. 4 - Pedological Variations Across High-Center Polygons  
Near Barrow, Alaska, A.P. Simons, P. Gersper, Aug. 1, 1971, 1970,

Soil Temperature (°C):  
Soil Moisture (%):  
Depth of Thaw (cm):  
Point Barrow.

Source No. 159.  
, U.S. IBP Analyses of Ecosystems Program Interbiome Abstracts  
Vol. I, No. 4 - Taxonomy, Ecology, and the Role of Fungal Decom-  
posers in the Tundra-Taiga Biome, P. W. Flanagan, A. Scarborough,  
Aug. 1, 1971, 1970,

Soil Temperature (°C):  
Soil Moisture (%):  
Point Barrow.

Source No. 160.  
, U.S. IBP Analyses of Ecosystems Program Interbiome Abstracts  
Vol. I, No. 4 - Sources of Carbon Dioxide at the Soil-Air Interface  
during Soil Freeze-up in the Arctic, P. I. Coyne and J. J. Kelley, Jr.,  
Aug. 1, 1971, 1970,

Soil moisture (% by weight):  
Soil Temperature (°C):  
Point Barrow.

Source No. 161.  
, U. S. IBP Analyses of Ecosystems Program Interbiome Abstracts  
Vol. I, No. 4 - Precipitation - Runoff Relationships, R. Lewellen,  
J. Brown, Aug. 1, 1971, 1970,

Evaporation (mm/day):  
Air Temperature (°C):  
Relative Humidity (%):  
Precipitation (mm):  
Runoff (liters/sec):  
Point Barrow.

Source No. 162.  
, U.S. IBP Analyses of Ecosystems Program Interbiome Abstracts  
Vol. I, No. 4 - Soil Temperature and Model Validation, J. Brown, Y.  
Nakano, V. Rockney, D. Trabant, Aug. 1, 1971, 1970,

Soil Temperature (°C):  
Thaw Depth (cm):  
Point Barrow.

Source No. 163.  
Alaska Dept. of Health, Water Hydrological Data, Water Utilization  
in the Anchorage Area, R. M. Waller, 1960, 1958-1959, SKNR.GB  
1025 A4 A32 No. 1-7, 9, 11-12, Arctic Meteorology Research Group.

Source No. 163, Continued.

Estimated water use, in million gallons, by source and user, for the period 1954-1959.

Mean Monthly discharge, in million gallons/day, of 3 streams and Russian Jack Springs in the Anchorage area, Alaska, 1958-59.

Selected chemical analyses of ground water in the Anchorage, Ak. area.

Selected chemical analyses of surface water in the Anchorage, Ak. area.

Chloride content, in parts/million, of water from 2 wells sampled twice yearly during 1953-59, in the Anchorage area, Ak.

Anchorage.

Source No. 164.

U. S. Weather Bureau, Decennial Census of United States Climate - Monthly, Normals of Temp., Pcpn., and Heating Degree Days, ,

, Geophysical Library.

Temperature (°F): Max. temp., min. temp., Avg. temp. - Monthly.

Degree days: Monthly

Precipitation (inches): Monthly.

Anchorage.

Source No. 165.

, Some Results of Geothermal Investigations of Permafrost in N. Alaska, Max C. Brewer, Feb. 1958, , QE 500, Transactions Am.

Geophysical Union, Vol. 39, No. 1.

Abstract: Frequent, regular thermal measurements in No. Ak. over a 60-year period have provided information on many of the problems related to the temp. & distribution of permafrost in the arctic. The max. depth of permafrost near Barrow is 1,330 ft. The min. permafrost temp. recorded, below the depth of measureable (0.01°C) seasonal fluctuation (70 to 100 ft.), is -10.6°C. The temp. effect of medium-sized (40 by 100 ft.) heated buildings resting on permafrost is measureable to depths well below 50 ft. It is doubtful that frozen ground at shallow depths extends outward more than a few tenths of feet from the shore of the Arctic Ocean although it may be present at depths of 100 ft. Lakes deeper than about 7 ft. do not freeze to bottom and may have an unfrozen zone approaching several hundred ft. in depth beneath them.

Point Barrow.

Source No. 166.

American Geophysical Union, Transactions, Vol. 35, Precipitation at Barrow, Alaska, Greater than Recorded, Robert F. Black, 1954, 1949-50, QE 500 A6, Nat'l. Research Council of the Nat'l.

Wind Velocity (m.p.h.): Comparison of wind velocities recorded by the U. S. Weather Bureau & Civil Aeronautics Authority from Oct. 22, 1949, to June 18, 1950, 240 days.

Relative humidity (%): Mean monthly relative humidity Oct. 1949, through May, 1950.

Snowfall (inches): Depth of snow, snowfall, snow density Oct. 22,

Source No. 166, Continued.  
1949 to June 18, 1950.  
Point Barrow.

Source No. 167.  
Transactions American Geophysical Union, Thermal Radiation Measurements in Summer & Winter Alaskan Climates, A. M. Stoll & J. D. Hardy, 1955, 1952, QE 500 A6 (Geophysical Lib.), Nat'l. Acad. of Sci.  
Panradiometer data: Time: Bering Standard.  
Temperature (°C): Air temp., avg. radiant temp. of sky & terrain.  
Wind (ft./min.): Wind velocity.  
Radiation intensity (kg cal/m<sup>2</sup> hour): Solar normal to plane, reflected & scattered, total.  
Nome.

Source No. 168.  
, The Thermal Regime of an Arctic Lake, Max C. Brewer, April 1958, 1954-56, QE 500, Transactions Am. Geophysical Union, Vol. 39, No. 2  
Abstract: Much of the Arctic Coastal Plain in Ak. is covered by shallow lakes. Those in the Barrow area, which are believed to be representative of most of the lakes in the coastal plain, are generally either two to three ft. or 6 to 9 ft. deep. The shallow lakes can often provide a suitable summer water supply, but only the deeper lakes provide a significant H<sub>2</sub>O supply throughout the year. The water in the individual lakes is in an essentially isothermal state during the ice-free period that lasts from late June until Sept. The max. temp. recorded in a lake near Barrow in 1954 was about 12°C. When ice formation begins, the temp. of the body of water as a whole may be only a few tenths of a degree above 0°C. Once the lake surface is iced over, the H<sub>2</sub>O temps. may rise rapidly as much as 2°C, apparently owing to radiated heat received through the ice. The heating is terminated by a sudden cooling that coincides with the covering of the ice by a thin blanket of snow. This cooling is followed by a second warming of the bottom or near-bottom water that takes place gradually over a period of weeks. The bottom sediments beneath the lake are the source of heat. A gradual cooling takes place during the balance of the winter. Permafrost underlies the shallow lakes but an unfrozen basin several hundred ft. deep may extend beneath the deeper lakes.

Source No. 169.  
Cold Regions Science and Engineering Monograph, I-A3b., Climatology of the Cold Regions Northern Hemisphere II, C. Wilson, 1969, , .  
Temperature:  
Temperature Inversion:  
Humidity:  
Precipitation:  
Wind:

Source No. 169, Continued.

Abstract: The review summary of the climatological environment of the northern cold regions begun in CRSE Monograph I-A3a concludes with the three sections on Temperature (including inversions, humidity and precipitation, and winds). Each section has a selected but extensive bibliography.

Northern Hemisphere.

Source No. 170.

Headquarters Quartermaster Research and Engineering Command, Tech. Rept. EP-110, Atlas of Mean Daily Minimum Temperatures, S. Van Valkenburg, H. J. Warman & W. C. Robison, 1959, , .

Temperature: Mean daily min.

Abstract: Isotherms of mean daily minimum temperature at intervals of 9°F are shown for January, April, July, and October, on 24 maps representing each continent except Antarctica. Isotherms are based upon data from land stations only.

Northern Hemisphere.

Source No. 171.

U.S. Army, CRREL, Tech. Rept. 178, Defining the Cold Regions of the Northern Hemisphere, R. E. Bates and M. A. Bilello, 1966, , .

Abstract: The boundaries of the cold regions of the Northern Hemisphere are located by using parameters of air temperature, snow depth, ice cover, and frozen ground. Each parameter is discussed in detail and references used to develop four Northern Hemisphere cold regions maps are given. In all mountainous areas where few reporting stations exist, specific elevations or ridge lines were used to locate the limits of certain zones. In some areas, for example Greenland and expansive bodies of water, no isopleths were drawn because the parameter was not applicable or because of insufficient information. It is concluded that nearly all of the land mass north of 40° lies within the cold regions, and that nearly half of the land mass in the Northern Hemisphere can be classified as cold regions.

Northern Hemisphere.

Source No. 172.

Quartermaster Research and Engineering Center, Tech. Rept. EP-88, A Method of Assessing and Mapping the January Daily Minimum Temps. of Northern North America, E. E. Lackey, 1958, , .

Abstract: This report presents a method of assessing and mapping the January daily minimum temperature for northern North America (Canada north of 55°N lat., Alaska, Greenland, and Iceland). The method of assessing the frequency of daily minima requires only: (a) the mean daily minimum, (B) the absolute minimum, and (c) the length of the record. By use of these data and an adjusted probability scale, the frequency or percentage distribution of daily minimum temperatures for a station may quickly be ascertained. The adjusted probability scale was used in estimating

Source No. 172, Continued.

the daily minimum probabilities for 71 stations in northern N. America. Five maps constructed from the tabulated data show how the table may be used to give an overview of the whole Arctic area, featuring any selected temperature frequency. The appendix explains how the mean monthly temperature may be used to achieve the same results. However, the results are not quite as accurate.

Northern Hemisphere.

Source No. 173.

PNW Forest and Range Experiment Station #113, Some Effects of Shade Cover on Stream Temp. in Southeast Alaska, W. R. Meehan, 1970, , A 13.79: PNW 113.

Date and cloud cover at time temperatures (°C) were recorded in several streams in Southeast Alaska.

Avg. temp. difference/20 yards of streams on clear days with & without shade producing cover, in selected areas on Southeast Alaska.

Avg. temp. difference/20 yards of streams on overcast days, near Haines and Petersburg.

Summary of mean temp. differences under various sky and cover conditions for streams in selected areas of S.E. Alaska.

Alaska.

Source No. 174.

, Low Temperature Problems in Alaska, Amos J. Alter, 1955, , TC1 A35, American Water Works Association.

Alaskan Conditions: Climatic & Physical conditions.

Sources of water supply.

Transmission & Distribution - Techniques of warming the water in the distribution system.

Water Treatment.

Alaska.

Source No. 175.

State of Alaska Department of Health & Welfare, Hydrological Data. No. 19, R. M. Waller & D. A. Tolen, 1962, 1956-1960, SKNR.GB 1025A4 A15, No. 19, U. S. Geological Survey.

Records of wells and test holes in Southeastern Alaska.

Logs of wells and test holes in Southeastern Alaska.

Chemical analyses of ground water in Southeastern Alaska.

Alaska.

Source No. 176.

Medical Research Lab., Remarks on the Climate in Alaska, Herman Von Schelling, 1952, , AHRC Lib. QC 984.A4 V6, Navy Dept.

Abstract: In connection with the author's previously described theory concerning a mathematical curve dividing the globe into a definite climatic pattern, Alaska is presented as an example which

Source No. 176, Continued.

should validate the theory, since it has a complicated climatic pattern. It shares in four of the theoretical climatic regions, since 2 of the hypothetical curves intersect in the center of the Alaskan Peninsula. Preliminary comparison with known data on the climate found in Alaska gives good agreement with predictions of the theoretical expectations. The author invites further comparison of data by agencies having more extensive information available, and suggests that such data be pooled and compared with the theoretical pattern.

Alaska.

Source No. 177.

U. S. Army Corps of Engineers, Relationships Between Climate and Regional Variations in Snow-cover Density in North America, M. A. Bilello, 1969, 1952-1963, SKNR.GB 2301 U532.

Summary of snow-cover densities & climate includes: Years of record, Avg. seasonal snow density ( $\text{g/cm}^3$ ), Standard deviation, Skewness, Avg. seasonal temp. ( $^{\circ}\text{C}$ ), Avg. seasonal wind speed (M/sec.)  
Observed, weighed snow-cover densities ( $\text{G/cm}^3$ ).  
Anchorage, Barter Island.

Source No. 178.

, Freeze-thaw Cycle in the Coastal Arctic of Alaska, H. W. Searby, Oct. 1968, 1954-1955, 1963-1964, 1962-1968, Main Library, U.S.Department of Commerce, ESSA.

Temperature ( $^{\circ}\text{F}$ ): Dates of and mean temp. on day of specified ice thickness.

Air Temperature ( $^{\circ}\text{F}$ ): Mean annual, recorded high and low.

Precipitation (inches): Mean annual, max. annual, max. monthly.

Snowfall (inches): Mean annual, max. annual, max. monthly.

Air Freezing Index (degree days F below 32): Mean annual, min., max.

Air Thawing Index (degree days F above 32): Avg. date start freeze season, Avg. date start thaw season, Avg. length of freeze season (days), Avg. length of thaw season (days).

Snow Cover (inches): Max. recorded and min. recorded, 16 year avg.-monthly.

Barter Island, Point Barrow.

Source No. 179.

, Physical Processes at the Surface of the Arctic Tundra, J. J. Kelley, Jr. & D. F. Weaver, 1969, 1965-1966, SKNR. G 600 A69 C.2, AINA.

Air Temperature ( $^{\circ}\text{C}$ ):

Summer surface temp.

Monthly soil temp., diurnal temp. ( $^{\circ}\text{C}$ ) near the tundra surface.

Net radiation (Joules  $\text{cm}^{-2}$ ):

Cloud Cover (%):

Frequency distribution (%):

Solar Radiation:

Point Barrow.

Source No. 180.

, J. J. Kelley, Jr. & D. F. Weayer, 1969, 1965-66, Main Library, AINA.

Soil Temperature (°F): Avg. monthly.

Net Radiation (Joules cm<sup>-2</sup>): Avg. monthly

Cloud Cover (%): Avg. monthly.

Surface Temperature: Summer surface temp., frequency percent.  
Point Barrow.

Source No. 181.

Alaska Department of Health, Water Hydrological Data - Groundwater and Permafrost at Bethel, Alaska, R. M. Waller, 1957, , SKNR GB 1025A4 A32 No. 2, U. S. Department of the Interior.

Records of wells and test holes in the Bethel area.

Chemical analysis of water from wells at Bethel (parts/million except pH).

Bethel.

Source No. 182.

, Temperature and Wind Frequency Tables for North America and Greenland, , 1960, , Forestry Science Lib. III.5: 111.24, Arctic Meteorology Research Group.

Temperature:

Frequency and percentage frequency of wind speed: January to Dec.  
Point Barrow.

Source No. 183.

U. S. Army Material Command, Water Supply in Cold Regions, Amos J. Alter, 1969, , Docs. D 103.33/7: 3C-5A.

a) Water use at cold-region communities - Nome.

b) Record of incidents substantiating the occurrence of possibly waterborne communicable disease in cold-region areas.

c) Approximate heat rejection from internal combustion engines.

d) Water supply practice at selected cold-region communities-Nome.

e) Comparison of water rates & scavenger service rates in Nome & Fairbanks, Ak., before 1965.

f) Approximate monthly mean ground & air temps. at certain points in the Arctic Permafrost area.

g) Recommended cable sizes for electrical thawing.  
Nome.

Source No. 184.

U. S. Army Material Command, Water Supply in Cold Regions, Amos J. Alter, 1969, 1965, D103.33/7: 3C-5a.

Water use at cold region - Barrow, Gal/day per capita

Water supply practice at selected cold region communities - Barrow.

Approximate monthly mean ground & air temps. at certain points in the Arctic Permafrost area.

Recommended cable sizes for electrical thawing.

Point Barrow.

Source No. 185.

, Microclimatological Studies Over the Seward Glacier Snowpack - Part II, R. L. Lougeay, 1969, , AINA Research Paper No. 54.

Abstract: Microclimatic observations for a 10-day period in the summer of 1965 on the upper Seward Glacier show: 1) wind profiles that closely approximate long-linear curves (as would be expected under the stable conditions characteristic of this study period), 2) temp. profiles with a distinct double inversion pattern during daytime hours, and 3) net radiation the dominant heat source during each day of the study period whereas sensible and latent heat fluxes were almost insignificant due to low wind velocities and slight temp. ranges near 0°C.

Seward.

Source No. 186.

, Tundra Relief Features near Point Barrow, Alaska, K. M. Hussey & R. W. Michelson, 1966, , AINA.

Abstract: The distribution of minor tundra relief patterns shows that topography plays a leading part in their development. In extensive areas of very low relief, local expression may well exceed the regional range. Aside from the initial relief, the greatest deviations from a flat surface in the Barrow area are related to the growth or thaw of ground ice. This leads to such features as high- and low-centered polygons, ice-wedge troughs, ice-cored mounds and thaw basins of all sizes. The genesis of most of these features has been determined. However, it has been questioned that the basins could have been formed by thaw. Specimens of the frozen ground were collected and analyzed to determine their relative ice content. The values were extrapolated, and it was found that even the largest basins can be true thermokarst features.

Point Barrow.

Source No. 187.

, A Pedologic Study of Tundra Soils from Northern Alaska, Lowell A. Douglas, 1961, 1958, SKNR.S 599 A4 D73.

Average temperature (°F):

Precipitation (inches):

Mechanical analysis of some soils (hydrometer method).

Mechanical composition of tundra profile.

Chemical data of some tundra soils.

Conductivity data of several tundra soils near Barrow, on an uplifted beach ridge.

Point Barrow.

Source No. 188.

, The Influence of the Arctic Environment on Weathering and Soil Formation in the Arctic Slope of Alaska, David Easton Hill, 1958, , SKNR.S 616 A4 H5 1964.

Source No. 188, Continued.  
Climate, Geology, Permafrost, Vegetation of the area.  
Methods & Materials  
Morphology of selected profiles  
Results of Lab. Investigations  
Mechanical composition  
Mineralogy of Sands & Silts  
Mineralogy of Clays  
Chemical data.  
Point Barrow.

Source No. 189.  
, Probabilities of Sequences of Wet and Dry Days in Alaska, A.  
M. Feyenherm, L. D. Bark, W. C. Burrows, , , Forestry Science  
Lib. 111.8: 111.77(798), North Central Regional Research.  
Probability that a given day will be wet or dry, wet day at least  
0.01", .10", .20", .50".  
Homer.

Source No. 190.  
, Summer Climatic Gradients and Vegetation near Barrow, Alaska,  
E. E. C. Clebsch & R. E. Shanks, 1968, 1956, SKNR G 600 A69.  
Deviations of period accumulations of precipitation (cm) from U. S.  
Weather Bureau (Barrow Station) records of June, July & August,  
1956.  
Accumulated evapotranspiration losses (avg. & 3 cans/station)  
Accumulated evaporation losses.  
Average wind velocities & prevailing directions in the months of July  
and August, 1956.  
Point Barrow.

Source No. 191.  
U. S. Army Snow, Ice, & Permafrost Research Estd., A Survey of Arctic  
Snow-cover Properties as Related to Climatic Conditions, M. A.  
Bilello, 1957, 1947-1953, Docs. D 103.33/3: 39, U. S. Army Engrs.  
Cloud Coverage: Mean monthly  
Snow-cover temperatures ( $^{\circ}\text{C}$ ): Mean monthly  
Snow cover densities ( $\text{g}/\text{cm}^3$ ): Mean Monthly  
Air temperatures ( $^{\circ}\text{C}$ ):  
Comparison of observed snow-cover density with density computed from  
the nomographs.  
Relation between snow-cover temp. & air temp.  
Nomographs to estimate avg. monthly snow cover density for the months  
of Nov., dec., Jan., Feb., and March.  
Barter Island.

Source No. 192.  
U. S. Weather Bureau, Rainfall intensity-duration-frequency curves.  
, 1955, 1931-1950, Geophysical Institute Lib.  
Rainfall intensity-Duration-Frequency Curves.  
Juneau.