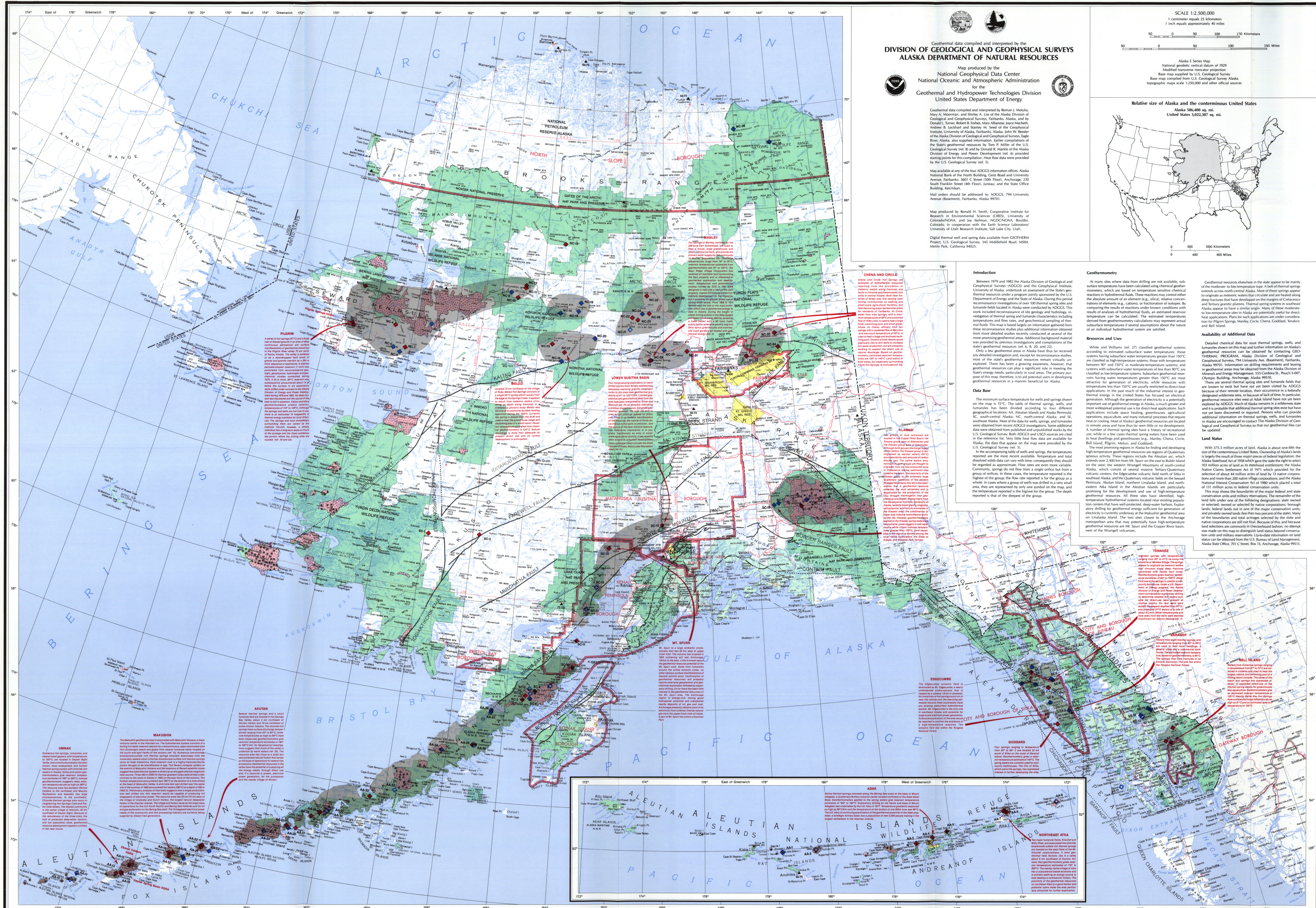
Geothermal Resources of Alaska

1983



Geothermal data compiled and interpreted by the
DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS
ALASKA DEPARTMENT OF NATURAL RESOURCES

Map produced by the
National Geophysical Data Center
National Oceanic and Atmospheric Administration
for the
Geothermal and Hydropower Technologies Division
United States Department of Energy

Geothermal data compiled and interpreted by Roman J. Motyka, Mary A. Moorman, and Shirley A. Liss of the Alaska Division of Geological and Geophysical Surveys, Fairbanks, Alaska, and by Donald L. Turner, Robert B. Forbes, Mary Albanese, Joyce Macbeth, Andrew B. Lockhart and Stanley M. Seed of the Geophysical Institute, University of Alaska, Fairbanks, Alaska. John W. Reeder of the Alaska Division of Geological and Geophysical Surveys, Eagle River, Alaska, also supplied information. Earlier compilations of the State's geothermal resources by Tom P. Miller of the U.S. Geological Survey (ref. 8) and by Donald R. Markle of the Alaska Division of Energy and Power Development (ref. 6) provided starting points for this compilation. Heat flow data were provided by the U.S. Geological Survey (ref. 5).

Map available at any of the four ADGGS information offices: Alaska National Bank of the North Building, Geist Road and University Avenue, Fairbanks; 3601 C Street (10th Floor), Anchorage; 230 South Franklin Street (4th Floor), Juneau; and the State Office Building, Ketchikan.

Mail orders should be addressed to: ADGGS, 794 University Avenue (Basement), Fairbanks, Alaska 99701.

Map produced by Ronald H. Smith, Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado/NOAA, and Joy Ikelman, NGDC/NOAA, Boulder, Colorado, in cooperation with the Earth Science Laboratory/University of Utah Research Institute, Salt Lake City, Utah.

Digital thermal well and spring data available from GEOTHERM Project, U.S. Geological Survey, 345 Middlefield Road, MS84, Menlo Park, California 94025.

SCALE 1:2,500,000
1 centimeter equals 25 kilometers
1 inch equals approximately 40 miles

50 0 50 100 150 Kilometers
50 0 50 100 150 Miles

Alaska E Series Map
National geodetic vertical datum of 1929
Modified transverse mercator projection
Base map supplied by U.S. Geological Survey
Base map compiled from U.S. Geological Survey Alaska
topographic maps scale 1:250,000 and other official sources

Relative size of Alaska and the conterminous United States

Alaska 586,400 sq. mi.
United States 3,022,387 sq. mi.

0 500 1000 Kilometers
0 400 800 Miles

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Bill Sheffield, Governor
Esther Wunnicke, Commissioner, Department of Natural Resources
Ross G. Schaff, State Geologist, Division of Geological and Geophysical Surveys

Thermal Springs and Wells

Thermal springs

◇	Surface temperature unknown
◆	Surface temperature 50°C or lower
◆	Surface temperature higher than 50°C

Thermal wells

●	Surface temperature 50°C or lower
●	Surface temperature higher than 50°C

Heat Flow

50-75 ▲	Geothermal gradient test hole (range of heat flow values in milliwatts/meter² shown for individual wells)

(See Lawver, Lachenbruch, and Moses, 1979 (ref. 5))

Thermal Waters

Light gray. Region of Alaska favorable for the discovery at shallow depth (less than 1000m) of thermal water of sufficient temperature for direct-heat applications. It is probable that only small areas of this region are truly underlain by such thermal water; the region represents that part of the state that deserves exploration for thermal areas. The region is defined on the basis of various geothermal and tectonic phenomena such as locations of thermal wells and springs, above-normal heat flow, youthful volcanism, mineralization, and seismicity.

Tectonics and Volcanism

┅	Faults, dotted where concealed or inferred
▨	Quaternary or Quaternary-Tertiary volcanic rocks
*	Volcanic vent

(See Beikman, 1980 (ref. 1))

Base Map Explanation

🟥	Known Geothermal Resources Area (KGRA) as designated by the U.S. Department of Interior. Name in red lettering.
🟨	Military reservation
🟩	National forest or state forest
🟩	National park, national monument, national wilderness area, national wildlife refuge, or state park

Private lands may exist within federal boundaries

─①─	State highway
──	Other principal road

Metric Conversion Factors

1 liter = .2642 gallon
1 meter = 3.281 feet
1 milligram/ liter = 1 part per million
°Celsius = 5/9 (°Fahrenheit − 32)
°Fahrenheit = 9/5 °Celsius + 32

Introduction

Between 1979 and 1982 the Alaska Division of Geological and Geophysical Surveys (ADGGS) and the Geophysical Institute, University of Alaska, undertook an assessment of the State's geothermal resources under a program jointly sponsored by the U.S. Department of Energy and the State of Alaska. During this period reconnaissance investigations of over 100 thermal spring sites and fumarole fields located in Alaska were conducted by ADGGS. This work included reconnaissance of site geology and hydrology, investigation of thermal spring and fumarole characteristics including temperatures and flow rates, and geochemical sampling of thermal fluids. This map is based largely on information gathered from these reconnaissance studies plus additional information obtained from more detailed studies recently conducted at several of the more promising geothermal areas. Additional background material was provided by previous investigations and compilations of the state's geothermal resources (ref. 6, 8, 20, and 22).

Only a few geothermal areas in Alaska have thus far received any detailed investigation and, except for reconnaissance studies, most of the state's geothermal resources remain virtually unexplored. There has been a growing awareness, however, that geothermal resources can play a significant role in meeting the State's energy needs, particularly in rural areas. The primary purpose of this map, therefore, is to aid potential users in developing geothermal resources in a manner beneficial for Alaska.

Data Base

The minimum surface temperature for wells and springs shown on the map is 15°C. The table of thermal springs, wells, and fumaroles has been divided according to four different geographical locations: AA, Aleutian Islands and Alaska Peninsula; SC, south-central Alaska; NC, north-central Alaska; and SE, southeast Alaska. Most of the data for wells, springs, and fumaroles were obtained from recent ADGGS investigations. Some additional data were obtained from published and unpublished works by the U.S. Geological Survey. Both ADGGS and USGS sources are cited in the reference list. Very little heat flow data are available for Alaska; the data that appear on the map were provided by the U.S. Geological Survey (ref. 5).

In the accompanying table of wells and springs, the temperatures reported are the most recent available. Temperature and total dissolved solids data can vary with time; consequently they should be regarded as approximate. Flow rates are even more variable. Commonly, springs do not flow from a single orifice but from a group of orifices. In these cases, the temperature reported is the highest of the group; the flow rate reported is for the group as a whole. In cases where a group of wells was drilled in a very small area, they are represented by only one symbol on the map, and the temperature reported is the highest for the group. The depth reported is that of the deepest of the group.

Geothermometry

At many sites where data from drilling are not available, subsurface temperatures have been calculated using chemical geothermometers, which are based on temperature sensitive chemical reactions in hydrothermal fluids. These reactions may control either the absolute amount of an element (e.g., silica), relative concentrations of elements (e.g., cations), or fractionation of isotopes. By comparing the results of reactions under known conditions with results of analyses of hydrothermal fluids, an estimated reservoir temperature can be calculated. The estimated temperatures derived from geothermometry calculations may represent actual subsurface temperatures if several assumptions about the nature of an individual hydrothermal system are satisfied.

Resources and Uses

White and Williams (ref. 27) classified geothermal systems according to estimated subsurface water temperatures: those systems having subsurface water temperatures greater than 150°C are classified as high-temperature systems; those with temperatures between 90° and 150°C as moderate-temperature systems; and systems with subsurface water temperatures of less than 90°C are classified as low-temperature systems. Subsurface geothermal reservoirs having water temperatures greater than 150°C are most attractive for generation of electricity, while resources with temperatures less than 150°C are usually restricted to direct-heat applications. In the past much of the industrial interest in geothermal energy in the United States has focused on electrical generation. Although the generation of electricity is a potentially important use of geothermal energy in Alaska, a much greater and more widespread potential use is for direct-heat applications. Such applications include space heating, greenhouses, agricultural operations, aquaculture, and many industrial processes that require heat or cooling. Most of Alaska's geothermal resources are located in remote areas and have thus far seen little or no development. A number of thermal spring sites have a history of recreational use, while in a few cases thermal spring waters have been used to heat dwellings and greenhouses (e.g., Manley, Chena, Circle, Bell Island, Pilgrim, Melozi, and Goddard).

The most promising regions in Alaska for finding and developing high-temperature geothermal resources are regions of Quaternary igneous activity. These regions include the Aleutian arc, which extends over 2,400 km from Mt. Spurr on the east to Buldir Island on the west; the western Wrangell Mountains of south-central Alaska, which consist of several massive Tertiary-Quaternary volcanic centers; the Edgecumbe volcanic field north of Sitka in southeast Alaska; and the Quaternary volcanic fields on the Seward Peninsula. Akutan Island, northern Unalaska Island, and northeastern Atka Island in the Aleutian Islands are particularly promising for the development and use of high-temperature geothermal resources. All three sites have identified, high-temperature hydrothermal systems located near existing population centers that have well-protected, deep-water harbors. Exploratory drilling for geothermal energy sufficient for generation of electricity is currently underway at the Makushin geothermal area on Unalaska Island. The two sites closest to the Anchorage metropolitan area that may potentially have high-temperature geothermal resources are Mt. Spurr and the Copper River basin, west of the Wrangell volcanoes.

Geothermal resources elsewhere in the state appear to be mainly of the moderate- to low-temperature type. A belt of thermal springs extends across north-central Alaska. Most of these springs appear to originate as meteoric waters that circulate and are heated along deep fractures that have developed on the margins of Cretaceous and Tertiary granitic plutons. Thermal spring systems in southeast Alaska appear to have a similar origin. Many of these moderate- to low-temperature sites in Alaska are potentially useful for direct-heat applications. Plans for such applications are under consideration for Pilgrim Springs, Manley, Circle, Chena, Goddard, Tenakee, and Bell Island.

Availability of Additional Data

Detailed chemical data for most thermal springs, wells, and fumaroles shown on this map and further information on Alaska's geothermal resources can be obtained by contacting GEOTHERMAL PROGRAM, Alaska Division of Geological and Geophysical Surveys, 794 University Ave. (Basement), Fairbanks, Alaska 99701. Information on drilling requirements and leasing in geothermal areas may be obtained from the Alaska Division of Minerals and Energy Management, 555 Cordova St., Pouch 5-007, Olympic Building, Anchorage, Alaska 99510.

There are several thermal spring sites and fumarole fields that are known to exist but have not yet been visited by ADGGS because of their remote location, their occurrence in a federally designated wilderness area, or because of lack of time. In particular, geothermal resource sites west of Adak Island have not yet been explored by ADGGS. Much of Alaska remains in a wilderness state and it is probable that additional thermal spring sites exist but have not yet been discovered or reported. Persons who can provide additional information on thermal springs, wells, and fumaroles in Alaska are encouraged to contact The Alaska Division of Geological and Geophysical Surveys so that our geothermal files can be updated.

Land Status

With 375.3 million acres of land, Alaska is about one-fifth the size of the conterminous United States. Ownership of Alaska's lands is largely the result of three major pieces of federal legislation: the Alaska Statehood Act of 1958 which gave the state the right to select 103 million acres of land as its statehood entitlement; the Alaska Native Claims Settlement Act of 1971 which provided for the selection of about 44 million acres of land by 13 native corporations and more than 200 native village corporations; and the Alaska National Interest Conservation Act of 1980 which placed a total of 131 million acres in federal conservation units.

This map shows the boundaries of the major federal and state conservation units and military reservations. The remainder of the land falls under one of the following designations: state owned or selected; owned or selected by native corporations; borough lands; federal lands not in one of the major conservation units; and privately owned lands (less than two percent of the state). Many of the boundaries and total acreages selected by the state and native corporations are still not final. Because of this, and because land selections are commonly in checkerboard fashion, no attempt was made on this map to distinguish land status beyond conservation units and military reservations. Up-to-date information on land status can be obtained from the U.S. Bureau of Land Management, Alaska State Office, 701 C Street, Box 13, Anchorage, Alaska 99513.

Thermal Springs and Wells

Number	Name	Latitude[a]	Longitude[a]	Temperature (°C)[b]	pH[c]	Total Dissolved Solids (mg/L)[d]	Flow (L/min)[e]	Surface Manifestation
AA- 1	LITTLE SITKIN	51 57 00	178 32 45E	–	–	–	–	FUMAROLES
AA- 2	SEMISOPOCHNOI	51 53 36	179 37 40E	–	–	–	–	FUMAROLES
AA- 3	KANAGA	51 55	177 09 W	104*	–	–	–	HOT SPRINGS AND FUMAROLES
AA- 4	ADAK	51 59 20	176 37 00W	57	5.96	20,500	30	HOT SPRINGS
AA- 5	GREAT SITKIN	52 02 10	176 05 40W	97	5.77	180	–	FUMAROLES AND LOW CHLORIDE SPRING
AA- 6	KOROVIN	52 20 58	174 14 50W	99	4.16	240	–	FUMAROLES, LOW CHLORIDE SPRINGS, AND MUDPOTS
AA- 7	KLIUCHEF	52 19 18	174 11 10W	94, 94*	3.28	65	470	FUMAROLES, LOW CHLORIDE SPRINGS, AND MUDPOTS
AA- 8	MILKY RIVER	52 19 12	174 08 50W	45, 94*	5.3	470	–	FUMAROLES AND LOW CHLORIDE SPRINGS
AA- 9	SEGUAM	52 18	172 28 W	–	–	–	–	HOT SPRINGS AND MUDPOTS
AA-10	CHUGINADAK	52 50	169 52 W	–	–	–	–	HOT SPRINGS
AA-11	KAGAMIL	52 59	169 42 W	–	–	–	–	HOT SPRINGS AND FUMAROLES
AA-12	GEYSER BIGHT	53 12 51	168 27 36W	102	8.00	1820	1050	HOT SPRINGS, GEYSERS, AND FUMAROLES
AA-13	PARTOV COVE	53 13 42	168 18 30W	84	6.57	600	200	HOT SPRINGS
AA-14	HOT SPRINGS COVE	53 14 41	168 21 39W	94	6.60	2510	180	HOT SPRINGS
AA-15	OKMOK CALDERA	53 24 20	168 11 00W	97*	–	–	–	FUMAROLES
AA-16	MAKUSHIN VOLCANO	53 53 15	166 55 00W	150*	–	–	–	FUMAROLES
AA-17	GLACIER VALLEY	53 50 48	166 53 00W	97, 152*	6.40	340	400	FUMAROLES AND LOW CHLORIDE SPRINGS
AA-18	MAKUSHIN VALLEY	53 53 27	166 50 09W	87, 98*	5.48	610	–	FUMAROLES AND LOW CHLORIDE SPRINGS
AA-19	SUMMER BAY	53 53 06	166 26 54W	35	6.98	1100	64	WARM SPRING
AA-20	SUMMER BAY WELL	53 53 06	166 26 54W	50	–	2300	180	DEPTH 17 M
AA-21	AKUTAN FUMAROLES	54 08 49	165 54 28W	92,99*	2.6	1590	–	FUMAROLE AND ACID SPRINGS
AA-22	HOT SPRINGS BAY	54 08 55	165 51 43W	84	6.98	1160	600	HOT SPRINGS
AA-23	AKUN STRAIT	54 08 24	165 38 24W	43	7.47	6040	40	HOT SPRINGS
AA-24	SHISHALDIN	54 45 20	163 58 15W	–	–	–	–	SUMMIT FUMAROLES
AA-25	FALSE PASS	54 55 48	163 14 24W	62	8.44	260	225	HOT SPRINGS
AA-26	KENMORE	54 54 12	163 08 48W	43	7.39	3220	80	HOT SPRINGS
AA-27	EGG ISLAND	54 56 06	162 54 36W	51	7.66	7630	200	HOT SPRINGS
AA-28	COLD BAY	55 13 18	162 24 42W	54	6.70	2730	700	HOT SPRINGS
AA-29	EMMONS LAKE	55 20 00	162 08 24W	65	6.24	780	600	HOT SPRINGS
AA-30	HAGUE	55 22 05	161 57 30W	–	–	–	–	FLANK FUMAROLES
AA-31	PAVLOV	55 25 20	161 53 30W	–	–	–	–	SUMMIT FUMAROLES
AA-32	PORT MOLLER	55 51 42	160 29 30W	71	8.24	2830	300	HOT SPRINGS
AA-33	KUPREANOFF	55 59 07	159 51 33W	–	–	–	–	FUMAROLE
AA-34	ANIAKCHAK	56 55 43	158 06 00W	23	5.7	550	–	WARM LAKE AND WARM SPRINGS
AA-35	MOTHER GOOSE	57 10 48	157 01 06W	66	6.35	2430	7600	HOT SPRINGS
AA-36	CHIGINAGAK	57 09	157 00 10W	–	–	–	–	FUMAROLES
AA-37	UKINREK	57 50 00	156 30 35W	16	9.03	680	–	WARM LAKES
AA-38	GAS ROCKS	57 51 16	156 29 30W	39	5.72	42,500	–	VIGOROUS BUBBLING IN BECHAROF LAKE
NC- 1	PILGRIM	65 00 38	164 55 08W	81	7.10	4520	255	HOT SPRINGS
NC- 2	PILGRIM WELLS	65 00 38	164 55 08W	90	6.4	6086	900	2 WELLS, DEPTH 50 M
NC- 3	SERPENTINE	65 51 25	164 42 33W	75	7.92	2740	520	HOT SPRINGS
NC- 4	LAVA CREEK	65 13 42	162 53 37W	53	9.2	330	360	HOT SPRINGS
NC- 5	BATTLESHIP MOUNTAIN	64 48 39	162 54 34W	19	9.4	370	70	HOT SPRINGS
NC- 6	KWINIUK	64 42 10	162 28 25W	41	8.7	2470	85	HOT SPRINGS
NC- 7	CLEAR CREEK	64 51 00	162 18 00W	65	7.9	270	880	HOT SPRINGS
NC- 8	GRANITE MOUNTAIN	65 22 02	161 12 10W	49	9.6	260	1630	HOT SPRINGS
NC- 9	HAWK	66 13 40	157 35 30W	43	8.25	280	400	HOT SPRINGS
NC-10	SOUTH	66 09 22	157 08 24W	67	8.64	330	1350	HOT SPRINGS
NC-11	UPPER DIVISION	66 20 40	156 46 24W	68	7.98	480	820	HOT SPRINGS
NC-12	LOWER DIVISION	66 22 45	156 44 15W	56	8.05	600	2070	HOT SPRINGS
NC-13	DULBAI	65 15 34	155 16 47W	55	8.43	710	20	SMALL SEEPS
NC-14	SUN MOUNTAIN	65 54 27	154 59 36W	20	6.01	570	–	SEEPS IN SMALL PONDS
NC-15	REED RIVER	67 16 00	155 06 20W	57	7.03	510	160	HOT SPRINGS
NC-16	HORNOR	64 55 26	154 50 16W	48	8.70	240	500	HOT SPRINGS
NC-17	MELOZI	65 07 45	154 41 34W	55	8.36	410	–	HOT SPRINGS
NC-18	POCAHONTAS	65 58 13	154 11 57W	30	7.06	160	–	NUMEROUS SMALL SEEPS
NC-19	TUNALKTEN LAKE	66 11 50	154 01 44W	15	7.50	210	–	SEEPS
NC-20	LITTLE MELOZITNA	65 26 36	153 18 36W	39	8.18	340	1320	HOT SPRINGS
NC-21	MCQUESTEN	65 39 14	151 40 00W	–	–	–	–	HOT SPRINGS
NC-22	ISHTALITNA	65 52 10	151 38 30W	58	8.76	270	350	HOT SPRINGS
NC-23	KILO	65 48 37	151 14 10W	52	8.77	220	1000	HOT SPRINGS
NC-24	UPPER RAY RIVER	65 57 44	150 55 13W	44	8.67	240	660	HOT SPRINGS
NC-25	KANUTI	66 20 33	150 50 44W	66	8.18	380	90	HOT SPRINGS
NC-26	LOWER RAY RIVER	65 59 02	150 34 47W	63	8.54	320	–	NUMEROUS VENTS IN STREAM GRAVELS
NC-27	MANLEY	65 00 21	150 38 00W	59	8.57	370	1420	HOT SPRINGS
NC-28	MANLEY-WELLS	65 00 24	150 38 09W	29	–	–	–	DEPTH 30 M
NC-29	HUTLINANA	65 12 53	149 59 33W	41	7.44	610	400	HOT SPRINGS
NC-30	DALL	66 13 09	149 33 10W	55	8.63	430	430	HOT SPRINGS AND SEEPS
NC-31	TOLOVANA	65 16 22	148 51 05W	62	7.43	1150	480	HOT SPRINGS AND SEEPS
NC-32	CHENA	65 03 12	146 03 24W	63	8.53	390	850	HOT SPRINGS
NC-33	CIRCLE	65 28 55	144 38 16W	58	7.11	770	1540	HOT SPRINGS AND SEEPS
NC-34	BIG WINDY	65 13 39	144 29 50W	61	6.41	1290	900	HOT SPRINGS AND SEEPS
NC-35	OKPILAK	69 19 48	144 02 38W	49	–	–	–	HOT SPRINGS
NC-36	RED HILL SPRING	69 37 38	146 01 38W	29	8.2	570	–	HOT SPRINGS
SC- 1	OPHIR	61 11 33	159 51 32W	61	9.12	370	270	HOT SPRINGS
SC- 2	CHUILNUK	61 21 29	157 45 10W	51	9.59	170	550	HOT SPRINGS
SC- 3	MT. MARTIN	58 10	155 21 W	94*	–	–	–	SUMMIT FUMAROLES, WARM ACID LAKE
SC- 4	MT. MAGEIK	58 11 45	155 15 10W	70, 94*	1.0	–	–	SUMMIT FUMAROLES, HOT ACID LAKE
SC- 5	MT. GRIGGS	58 21 15	155 05 30W	–	–	–	–	HIGH PRESSURE FLANK FUMAROLES
SC- 6	KATMAI CALDERA LAKE	58 15 44	154 58 31W	29	3.	4050	–	WARM CRATER LAKE
SC- 7	MT. TRIDENT	58 14	155 05 W	–	–	–	–	SUMMIT FUMAROLES
SC- 8	SNOWY MT.	58 20 09	154 40 12W	89*	–	–	–	STEAMING VENTS
SC- 9	KUKAK	58 27 24	154 20 56W	–	–	–	–	FLANK FUMAROLE
SC-10	MT. DOUGLAS	58 51 31	153 32 34W	93*	–	–	–	SUMMIT CRATER FUMAROLES AND WARM LAKE
SC-11	AUGUSTINE	59 21 49	153 25 43W	470*	–	–	–	SUMMIT DOME SUPERHEATED FUMAROLES
SC-12	ILIAMNA	60 01 57	153 05 24W	–	–	–	–	SUMMIT FUMAROLES
SC-13	REDOUBT	60 29 15	152 44 30W	–	–	–	–	SUMMIT FUMAROLES
SC-14	MT. SPURR	61 15 10	152 13 50W	94*	–	–	–	FLANK CRATER FUMAROLES AND WARM LAKE
SC-15	WILLOW WELL	61 38 30	150 05 42W	76	–	–	–	632 M HOLE WITH ANOMALOUS GRADIENT
SC-16	LOWER KLAWASI	62 03 27	145 13 20W	20	7.15	23,600	120	WARM SPRINGS
SC-17	UPPER KLAWASI	62 04 52	145 00 17W	17	6.64	30,700	210	WARM SPRINGS
SC-18	NORTH CRATER WRANGELL	61 59 34	144 01 16W	86*	1.0	38,000	–	SUMMIT CRATER FUMAROLES
SC-19	COPPER CLACIER	62 05 22	143 48 22W	20	7.0	–	–	WARM SPRINGS
SE- 1	WHITE SULFUR	57 48 19	136 20 23W	44	8.33	1850	85	HOT SPRINGS
SE- 2	NEKA BAY	58 05 30	135 50 58W	47	8.07	640	170	HOT SPRINGS
SE- 3	TENAKEE INLET	57 59 26	135 56 19W	80	8.24	540	90	HOT SPRINGS
SE- 4	NORTH PERIL STRAIT	57 45 47	135 48 23W	41	8.65	590	10	HOT SPRINGS
SE- 5	TENAKEE	57 46 49	135 12 57W	41	9.07	740	–	HOT SPRINGS
SE- 6	TENAKEE WELLS	57 46 49	135 12 57W	37	9.44	560	8	6 WELLS, DEPTHS 7 TO 54 M
SE- 7	NYLEN	57 37 49	135 19 44W	51	8.49	950	100	HOT SPRINGS
SE- 8	FISH BAY	57 21 10	135 24 10W	46	8.70	280	120	HOT SPRINGS
SE- 9	GODDARD	56 50 12	135 22 26W	66	7.12	890	100	HOT SPRINGS
SE-10	BARANOF	57 05 14	134 50 20W	50	8.60	280	300	HOT SPRINGS
SE-11	BAKER ISLAND	55 17 30	133 40 30W	–	–	–	–	HOT SPRINGS
SE-12	TWIN LAKES	56 42 00	132 16 48W	21	6.95	110	270	WARM SPRINGS
SE-13	MT. RYNDA	56 39 30	132 16 00W	–	–	–	–	HOT SPRINGS
SE-14	CHIEF SHAKES	56 43 00	132 00 18W	50	7.90	340	470	HOT SPRINGS
SE-15	BARNES LAKE	56 40 48	131 52 54W	26	6.95	250	30	WARM SPRINGS
SE-16	BRADFIELD CANAL	56 13 54	131 16 12W	57	8.15	512	40	HOT SPRINGS
SE-17	BAILEY BAY	55 59 00	131 39 48W	91	8.85	410	300	HOT SPRINGS
SE-18	BELL ISLAND	55 56 00	131 33 24W	74	8.50	650	100	HOT SPRINGS

Notes:

[a] When numerous springs are present, position is middle location.
[b] Temperature is given for hottest spring or spring with highest flow; asterisk (*) indicates highest recorded fumarole temperature
[c] Field measurement
[d] Computed value
[e] Measured or estimated
[f] Dash (–) indicates data unavailable

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