UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Principal facts for gravity stations on Annette Island, southeast Alaska

by

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Introduction

This report presents the principal facts of gravity stations collected by the U.S. Geological Survey, Branch of Geophysics for the Annette Island mineral resource appraisal project (AMRAP). Annette Island is located in southeast Alaska (figure 1).

Data Collection

Gravity data were collected during 3 field seasons: 1987, 1988, and 1990.LaCoste and Romberg gravity meter G-551 was used in 1987; meter G-695 was used in 1988 and 1990. A total of 276 stations were collected in an area bounded by 54°59′ to 55°20′ N latitude and 131°20′ to 131°40′ W longitude (figure 2). Access to gravity station sites was mainly by helicopter, although some gravity stations on the Metlakatla Peninsula were accessed by vehicle. There are no bench marks or other points of established elevation on the island; therefore the majority of elevations at station locations were determined using altimetry. There is no rigorous method of determining the errors introduced by the use of altimeters for elevation control. However, it is estimated that elevations determined in this manner are accurate to within 50 feet. Elevations of some gravity stations near the coastline were directly referenced to sea levels, as determined by published tide tables for the area. It is estimated that elevations determined in this manner are accurate to within 10 feet. Using a reduction density of 2.67 g/cc, these elevation uncertainties can be calculated to give the maximum uncertainty in the Bouguer anomaly value using a constant of 0.06 mGal/foot.

Base stations

During the 1987 and 1988 field seasons, a secondary base station was established at the office of Temsco Helicopters north of Ketchikan. This base was used to determine linear instrument drift by making repeat observations at the beginning and end of each day of data collection. During the 1990 field season, instrument drift was measured by using a secondary base station previously established at the Federal Building in downtown Ketchikan.

Data reduction

Both the altimetry data and the gravity data were reduced by using unpublished computer programs developed at the USGS facility in Menlo Park, California. Geographic coordinates of each gravity station were obtained by digitizing the station location as marked on the original 1:63,360-scale field sheets. The gravity data were corrected for linear instrument drift and earth tides. The observed gravity values, which are relative to the International Gravity Standardization Net 1971 (IGSN 71) (Morelli, 1974), were processed using a reduction density of 2.67

gm/cc using the 1967 gravity formula (International Association of Geodesy, 1971) as described by Cordell and others (1982). All gravity data were referenced to the primary base at the old airport on Annette Island, which has been tied to the IGSN 71 net through bases in Seattle, Juneau, and Anchorage. Terrain corrections were computer generated to a radial distance of 166.7 km around each station using a technique by Plouff (1977). These terrain corrections use mean-elevation data digitized on a 15-second grid for corrections from 0 to 5 km, 1-minute terrain data for corrections from 5 to 21 km, and 3-minute data for corrections from 21 to 166.7 km.

References

Cordell, Lindrith, Keller, G.R., and Hildenbrand, T.G., 1982, Bouguer gravity map of the Rio Grande Rift, Colorado, New Mexico, and Texas: U.S. Geological Survey Geophysical Investigations Series, Map GP-949, scale 1:1,000,000.

International Association of Geodesy, 1971, Geodetic Reference System 1967:International Association of Geodesy Special Publication No. 3, 116 p.

Morelli, Carlo, Gantav, C., Honkasala, Tauno, McConnel, R.K., Tanner, J.G., Szabo, Bela, Uotila, U.A., and Walen, G.T., 1974, The International Gravity Standardization Net 1971 [I.G.S.N.71]: Paris, International Association of Geodesy Special Publication No. 4, 194 p.

Plouff, Donald, 1977, Preliminary documentation for a FORTRAN program to compute gravity terrain corrections based on topography digitized on a geographic grid: U.S. Geological Survey Open-File Report 77-535, 43 p.

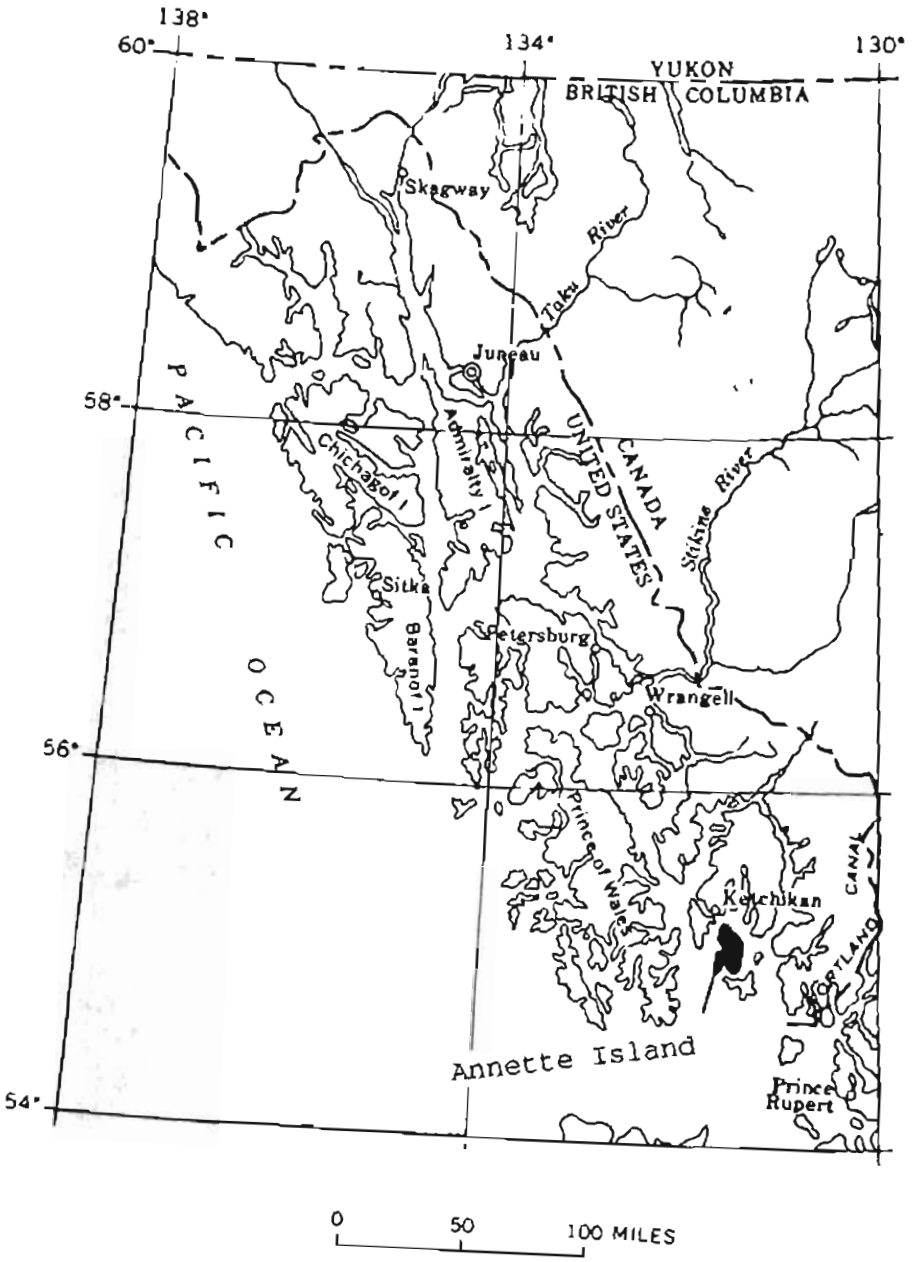


Figure 1. Index map of southeastern Alaska showing the location of Annette Island.

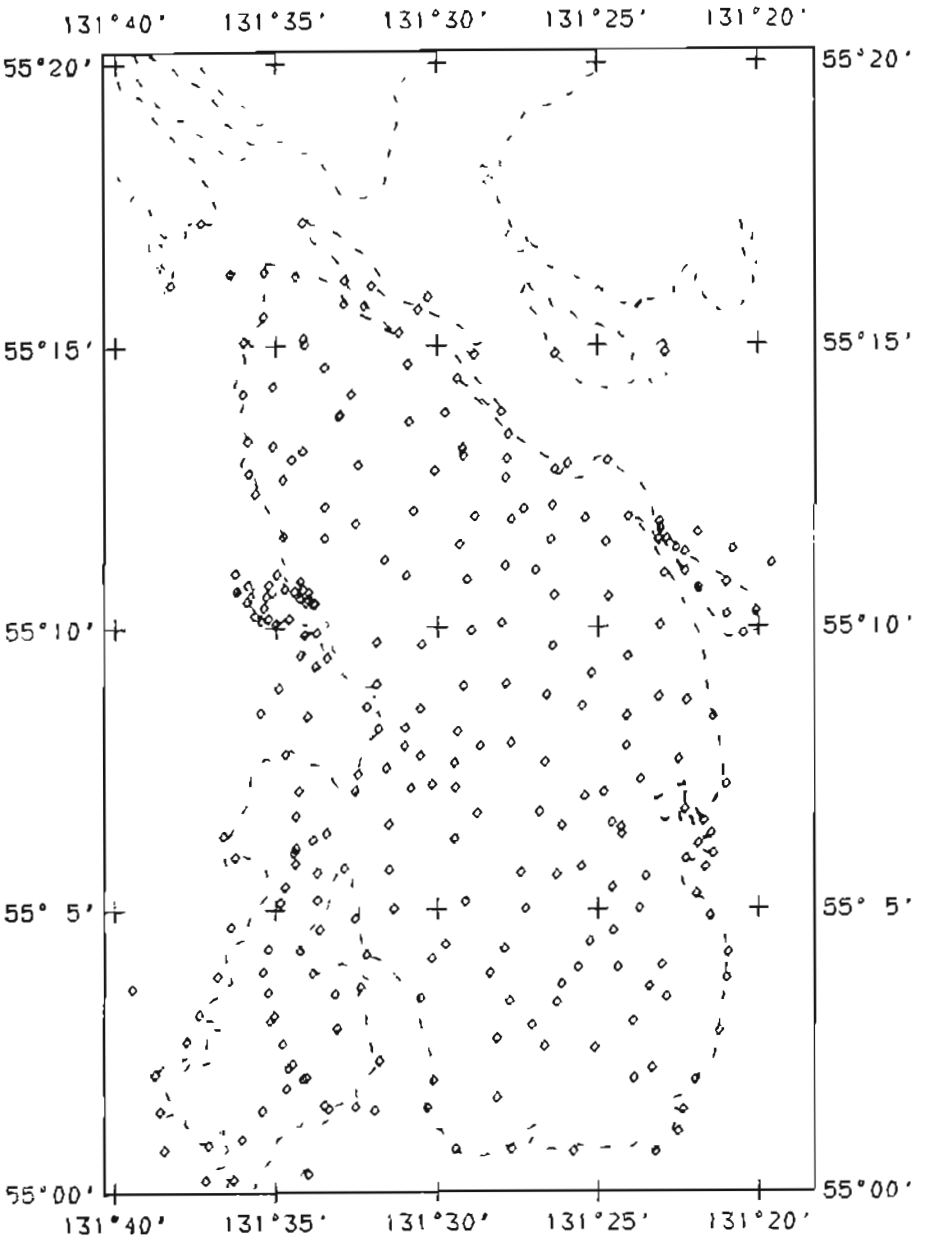
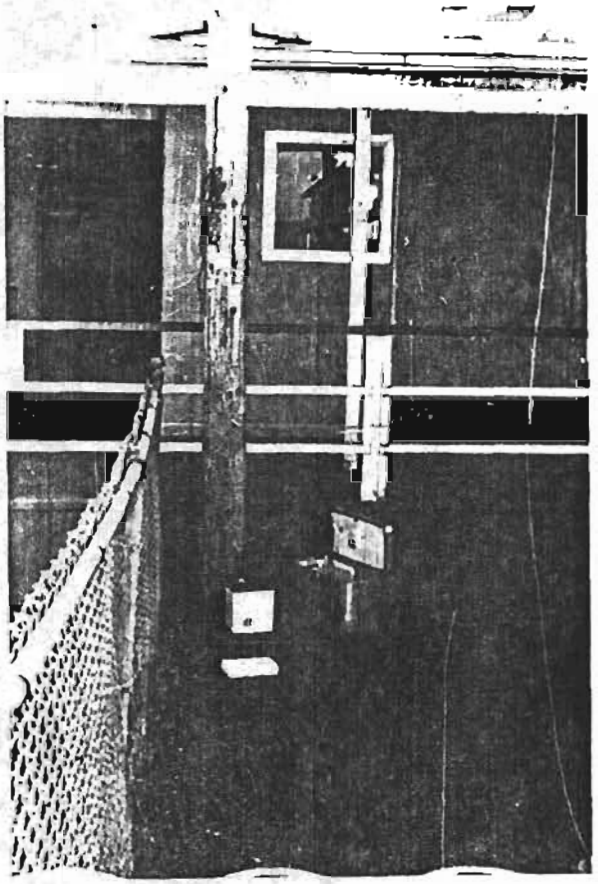


Figure 2. Location map showing gravity stations on Annette Island. Scale 1:250,000.

Primary gravity base station description and photograph:



Station designation: ANET

Observed gravity: 981,521.59 mGals

Estimated accuracy: +/- .03 mGal

Elevation: 119 feet above sea level

Latitude: 55 02.29'

Longitude: 131 34.60'

Location description: Annette Island, in front of the old Alaska Airlines terminal building (currently used as a bingo hall by the Annette Island Tribe) on gravel in field enclosure and below USGS marker on power pole.

Secondary gravity base station descriptions:

Note: these secondary base stations were established to measure linear meter drift. Therefore, the latitude, longitude, and elevation are only approximate. The principal facts for these stations are NOT absolute.

Station designation: KETH

Observed gravity: 981,532.40 mGals

Estimated accuracy: +/- .05 mGal

Elevation: 31 feet above sea level

Latitude: 55 22.98'

Longitude: 131 44.08'

Location description: Temsco Helicopters office, north of Ketchikan at Peninsula Point, 1 foot south of the southern edge of the white door marked " office", on the concrete in the corner.

Station designation: KETP

Observed gravity: 981,543.84 mGals

Estimated accuracy: +/- .05 mGal

Elevation: 18 feet above sea level

Latitude: 55 20.50'

Longitude: 131 38.43'

Location description: Ketchikan Federal Building, downtown Ketchikan, on the east side of steps to north (main) entrance, below a fire-hose spigot and above a USGS gravity marker.

Explanation of headings for gravity data

sta#	gravity station number
long.	west longitude of station (decimal degrees)
lat.	latitude of station (decimal degrees)
faa	free air anomaly
sba	simple Bouguer anomaly in milligals
cba	complete Bouguer anomaly in milligals
elev	elevation of gravity station (feet)
obsgrav.	observed gravity of station in milligals
year	year data was collected

sta#	long.	lat.	faa	sba	cba	elev.	obsgrav.	year
TS01	-131.5972	55.2127	-8.0	-7.9	-6.7	-3.0	981516.94	1987
TS02	-131.5692	55.2192	10.1	-6.4	-3.4	484.0	981489.69	1987
TS03	-131.5750	55.2167	8.3	-7.5	-5.2	464.0	981489.56	1987
TS04	-131.5578	55.2025	52.7	-28.4	-9.3	2376.0	981352.81	1987
TS08	-131.5683	55.2505	47.9	-23.3	-1.5	2087.0	981379.38	1987
TS09	-131.5442	55.2358	47.9	-20.2	-4.7	1998.0	981386.44	1987
TS10	-131.5142	55.2278	38.4	-21.5	-5.1	1756.0	981399.00	1987
TS11	-131.4887	55.1913	53.6	-36.4	-10.1	2636.0	981328.25	1987
TS12	-131.5162	55.1820	59.6	-39.2	-10.0	2898.0	981308.88	1987
TS13	-131.5080	55.1617	51.3	-36.0	-13.6	2556.0	981330.94	1987
TS14	-131.4825	55.1658	41.9	-34.3	-18.1	2235.0	981352.19	1987
TS15	-131.4667	55.1680	45.1	-41.9	-16.9	2550.0	981325.81	1987
TS16	-131.4645	55.1503	34.9	-30.4	-17.8	1915.0	981374.00	1987
TS17	-131.4063	55.0662	73.5	-50.7	-5.0	3640.0	981243.06	1987
TS18	-131.3950	55.0837	24.3	-9.7	-5.0	996.0	981444.13	1987
TS20	-131.4092	55.0900	54.2	-23.2	-4.2	2269.0	981354.81	1987
TS21	-131.4237	55.1170	44.3	-37.2	-12.2	2388.0	981336.06	1987
TS22	-131.4442	55.1272	25.9	-27.5	-17.8	1565.0	981395.94	1987
TS23	-131.4250	55.1438	30.4	-30.4	-18.7	1782.0	981381.50	1987
TS26	-131.5505	55.2292	47.9	-22.5	-6.6	2061.0	981379.88	1987
TS28	-131.4863	55.2178	8.6	-9.6	-8.3	534.0	981483.44	1987
TS30	-131.5197	55.2538	-2.2	-2.2	-1.5	0.0	981526.00	1987
TS31	-131.4805	55.1997	12.8	-13.8	-11.2	779.0	981462.94	1987
TS32	-131.4412	55.1928	15.6	-18.3	-12.8	992.0	981445.13	1987
TS33	-131.4230	55.1992	4.7	-13.8	-12.2	541.0	981477.19	1987
TS34	-131.4125	55.1920	6.2	-13.8	-12.5	587.0	981473.88	1987
TS37	-131.4112	55.1758	37.6	-30.2	-13.8	1988.0	981371.94	1987
TS39	-131.3842	55.1672	0.7	-15.7	-14.0	480.0	981476.25	1987
TS41	-131.3413	55.1647	-10.1	-9.8	-9.6	-7.0	981511.19	1987
TS42	-131.3850	55.1463	30.9	-25.5	-13.4	1655.0	981394.13	1987
TS44	-131.4017	55.1408	37.9	-31.1	-14.6	2021.0	981366.19	1987
TS45	-131.4020	55.1320	4.9	-14.5	-10.8	570.0	981469.00	1987
TS46	-131.4137	55.1183	32.7	-18.9	-10.1	1510.0	981407.13	1987
TS48	-131.4795	55.1120	45.0	-27.3	-11.8	2121.0	981361.44	1987
TS49	-131.3608	55.0958	-4.9	-5.2	-4.6	9.0	981508.94	1987
TS50	-131.4383	55.0558	56.2	-20.9	-3.6	2262.0	981354.63	1987
TS51	-131.4695	55.0453	75.4	-20.0	8.3	2794.0	981322.75	1987
TS52	-131.4653	55.0717	35.6	-16.4	-5.2	1524.0	981404.81	1987
TS54	-131.4380	55.0938	42.9	-24.4	-9.4	1971.0	981371.81	1987
TS56	-131.5028	55.0688	28.5	-0.2	3.9	842.0	981461.63	1987
TS57	-131.5222	55.0837	48.7	-12.1	0.0	1782.0	981394.63	1987
TS58	-131.4855	55.0858	57.4	-18.3	-1.8	2218.0	981362.44	1987
TS59	-131.5250	55.1088	52.3	-28.4	-6.0	2366.0	981345.44	1987
TS60	-131.5728	55.1017	21.8	4.5	5.8	507.0	981489.25	1987
TS61	-131.6042	55.0992	3.5	3.3	3.4	6.0	981517.94	1987
TS62	-131.5028	55.1205	24.4	-10.1	-7.4	1011.0	981446.00	1987
TS63	-131.4908	55.1197	23.0	-11.5	-8.4	1010.0	981444.63	1987
TS64	-131.5263	55.1255	33.9	-26.7	-9.5	1776.0	981383.94	1987
TS65	-131.5088	55.1430	14.0	-13.1	-9.4	794.0	981457.88	1987
TS66	-131.4897	55.1363	8.5	-19.5	-16.1	821.0	981449.38	1987
TS67	-131.4780	55.1320	9.6	-15.9	-12.6	747.0	981457.00	1987
TS68	-131.5312	55.1625	21.4	-17.8	-13.7	1150.0	981433.56	1987
TS69	-131.3647	55.1945	-6.6	-6.7	-6.5	3.0	981516.19	1987
TS70	-131.3705	55.1453	-1.4	-14.6	-12.8	385.0	981481.19	1987
TS71	-131.3503	55.1203	-9.2	-9.4	-9.1	5.0	981507.13	1987
TS72	-131.4047	55.1078	-1.4	0.0	-12.8	0.0	981487.69	1987
TS73	-131.3583	55.0813	-3.8	-5.0	-4.0	33.0	981506.50	1987
TS74	-131.3812	55.0572	4.3	-14.6	-8.8	554.0	981463.63	1987
TS75	-131.3887	55.0367	16.4	-4.8	-2.3	619.0	981467.69	1987

TS76	-131.4187	55.0425	12.7	-4.5	-1.2	504.0	981475.38	1987
TS77	-131.4447	55.0430	44.4	-0.8	4.5	1323.0	981430.00	1987
TS78	-131.4695	55.0280	18.0	7.0	10.3	323.0	981496.50	1987
TS79	-131.4628	55.0562	-0.3	-8.9	-3.0	251.0	981487.38	1987
TS80	-131.4270	55.0662	45.2	-13.9	-6.7	1732.0	981394.31	1987
TS81	-131.3987	55.0503	55.9	-31.0	-7.2	2550.0	981326.81	1987
TS82	-131.3580	55.1058	-8.8	-8.6	-8.2	-6.0	981507.38	1987
TS83	-131.3747	55.1278	4.8	-12.2	-10.3	498.0	981475.31	1987
TS84	-131.3947	55.1220	8.8	-10.7	-9.0	573.0	981471.75	1987
TS85	-131.3713	55.1130	-10.7	-10.9	-10.1	5.0	981504.94	1987
TS86	-131.3833	55.0667	53.0	-17.7	-2.8	2072.0	981370.13	1987
TS87	-131.4087	55.0770	47.8	-19.1	-7.7	1960.0	981376.38	1987
TS89	-131.4958	55.0730	8.1	-2.0	3.1	296.0	981493.06	1987
TS92	-131.5617	55.0945	7.4	2.3	3.1	148.0	981508.00	1987
TS93	-131.5570	55.1062	8.1	-0.2	1.1	245.0	981500.63	1987
TS95	-131.5605	55.0775	4.7	4.4	4.9	10.0	981516.94	1987
ANEW	-131.5767	55.0367	14.6	10.5	10.6	119.0	981513.00	1988
TS96	-131.4867	55.2200	7.8	-7.4	-6.2	447.0	981491.00	1988
TS97	-131.5150	55.2447	19.1	-1.4	1.1	601.0	981489.88	1988
TS98	-131.4667	55.2308	-2.3	-2.4	-2.0	2.0	981523.69	1988
TS99	-131.4388	55.2478	-8.0	-8.0	-7.8	1.0	981519.56	1988
T100	-131.3813	55.2478	-11.6	-11.7	-11.5	4.0	981515.69	1988
T101	-131.4550	55.2020	3.6	-13.0	-11.8	488.0	981481.44	1988
T102	-131.4637	55.2170	1.1	-9.5	-8.7	311.0	981496.88	1988
T103	-131.5120	55.2012	-5.8	-14.1	-9.6	243.0	981495.00	1988
T106	-131.5695	55.2862	-4.1	-4.3	-3.9	7.0	981526.19	1988
T107	-131.6222	55.2862	-2.7	-3.0	-2.7	8.0	981527.44	1988
T108	-131.6380	55.2680	-1.4	-1.6	-1.4	8.0	981527.19	1988
T109	-131.5892	55.2717	-3.4	-3.6	-2.9	5.0	981525.75	1988
T110	-131.6000	55.2513	-2.8	-3.0	-2.1	5.0	981524.63	1988
T111	-131.6003	55.2362	-3.3	-3.4	-2.7	4.0	981523.00	1988
T112	-131.6037	55.1775	-8.5	-8.8	-8.4	7.0	981512.50	1988
T113	-131.5817	55.1492	-3.6	-3.6	-3.2	1.0	981515.56	1988
T114	-131.5670	55.1408	-2.9	-2.9	-2.4	1.0	981515.56	1988
T115	-131.5913	55.1420	-3.3	-3.3	-3.1	1.0	981515.31	1988
T116	-131.7058	55.1183	2.4	1.7	1.7	19.0	981517.19	1988
T117	-131.5705	55.1588	-6.7	-6.6	-5.7	-2.0	981513.56	1988
T118	-131.5362	55.1437	-7.7	-8.3	-6.6	20.0	981509.25	1988
T119	-131.4867	55.1497	-14.3	-17.4	-11.9	89.0	981496.56	1988
T120	-131.5375	55.2617	-3.4	-3.5	-2.8	3.0	981525.06	1988
T121	-131.4113	55.2162	-7.9	-8.3	-8.1	10.0	981516.06	1988
T122	-131.3842	55.1978	-11.2	-11.3	-10.9	4.0	981511.88	1988
T123	-131.3500	55.1797	-6.9	-7.1	-6.9	5.0	981514.50	1988
T124	-131.3467	55.1895	-4.7	-5.0	-4.9	9.0	981517.19	1988
T125	-131.4808	55.2475	-4.1	-4.0	-3.7	-3.0	981523.81	1988
T126	-131.4042	55.1058	-7.4	-12.9	-10.4	163.0	981492.81	1988
T127	-131.4353	55.1083	-9.4	-19.6	-14.8	297.0	981478.31	1988
T128	-131.4567	55.0945	-5.3	-15.5	-11.8	300.0	981481.06	1988
T129	-131.4912	55.1045	-6.6	-16.8	-10.9	300.0	981480.63	1988
T131	-131.5422	55.0808	1.5	1.2	3.9	8.0	981514.19	1988
T132	-131.5362	55.0700	5.1	4.8	6.7	11.0	981516.63	1988
T133	-131.5088	55.0570	8.5	8.2	9.8	8.0	981519.19	1988
T134	-131.5322	55.0242	7.8	7.2	7.4	16.0	981514.88	1988
T135	-131.5422	55.0253	9.0	8.8	8.9	8.0	981517.00	1988
T136	-131.5297	55.0387	8.1	7.9	8.3	7.0	981517.31	1988
T137	-131.4617	55.0128	8.2	8.0	8.5	5.0	981515.31	1988
T138	-131.3617	55.1095	-8.8	-9.0	-8.5	5.0	981506.56	1988
T139	-131.3567	55.0997	-8.0	-8.0	-7.6	2.0	981506.88	1988
T140	-131.3708	55.0983	-8.3	-8.3	-7.4	-1.0	981506.75	1988
T141	-131.4095	55.1092	2.0	-13.5	-11.1	453.0	981475.13	1988
T142	-131.3655	55.0878	-7.3	-7.3	-6.2	1.0	981506.69	1988
T143	-131.3492	55.0703	-5.3	-5.4	-4.5	4.0	981506.94	1988

T144	-131.3663	55.0330	-7.6	-7.6	-6.8	-2.0	981501.94	1988
T145	-131.3542	55.0472	-8.2	-8.2	-7.2	1.0	981502.31	1988
T146	-131.3500	55.0628	-6.7	-6.9	-5.9	6.0	981504.69	1988
T147	-131.3903	55.0605	20.0	-14.4	-6.9	1008.0	981436.81	1988
T148	-131.3983	55.0337	13.6	-4.2	-1.9	523.0	981473.81	1988
T149	-131.3725	55.0242	-2.4	-2.8	-2.4	11.0	981505.13	1988
T150	-131.4253	55.0962	1.8	-17.0	-13.2	549.0	981464.88	1988
T151	-131.3917	55.0933	7.3	-9.7	-6.9	498.0	981474.94	1988
T152	-131.3750	55.0178	0.6	0.4	0.6	5.0	981508.19	1988
T153	-131.5788	55.1783	-11.1	-10.9	-9.0	-8.0	981511.38	1988
T154	-131.5737	55.1775	-11.5	-11.2	-8.6	-8.0	981510.94	1988
T155	-131.5708	55.1755	-11.3	-11.0	-8.5	-8.0	981510.94	1988
T156	-131.5675	55.1742	-11.1	-10.9	-8.3	-5.0	981510.75	1988
T157	-131.5663	55.1753	-11.9	-11.8	-8.5	-5.0	981510.00	1988
T158	-131.5663	55.1772	-11.9	-11.8	-7.6	-4.0	981510.13	1988
T159	-131.5692	55.1780	-11.6	-11.5	-7.6	-2.0	981510.31	1988
T160	-131.5708	55.1805	-12.3	-12.3	-7.8	1.0	981509.56	1988
T161	-131.5500	55.2300	53.0	-19.0	-2.9	2110.0	981380.44	1988
T162	-131.5580	55.2437	48.0	-13.0	-0.4	1788.0	981406.88	1988
T163	-131.5783	55.1297	-1.5	-2.0	-1.7	14.0	981514.69	1988
T164	-131.6103	55.1055	0.7	0.7	0.8	-1.0	981516.38	1988
T165	-131.6063	55.0783	4.6	4.6	4.6	0.0	981517.81	1988
T166	-131.6133	55.0637	6.2	6.3	6.3	-3.0	981518.44	1988
T167	-131.6575	55.0600	4.9	4.8	4.8	2.0	981516.38	1988
T168	-131.6233	55.0525	7.5	7.4	7.4	3.0	981518.25	1988
T169	-131.6295	55.0447	7.5	7.3	7.3	6.0	981517.31	1988
T170	-131.4728	55.0645	1.6	-3.8	0.1	156.0	981498.88	1988
T172	-131.4542	55.0837	43.3	-18.2	-5.5	1803.0	981387.25	1988
T174	-131.3645	55.1028	-8.1	-8.5	-7.9	10.0	981506.25	1988
T175	-131.4470	55.1125	31.2	-27.8	-17.0	1731.0	981384.44	1988
T176	-131.5688	55.2522	46.9	-20.3	-2.2	1970.0	981389.44	1988
T177	-131.5405	55.2150	30.4	-13.8	-9.9	1298.0	981433.13	1988
T178	-131.5417	55.1975	51.0	-21.9	-7.2	2136.0	981373.31	1988
T179	-131.5272	55.1867	31.2	-15.4	-10.2	1365.0	981425.06	1988
T180	-131.5870	55.1795	-9.3	-9.5	-8.4	4.0	981512.13	1988
T181	-131.5983	55.1745	-9.0	-9.1	-8.6	3.0	981512.13	1988
T182	-131.5945	55.1705	-6.7	-6.8	-6.3	3.0	981514.06	1988
T183	-131.5895	55.1728	-7.2	-7.2	-6.5	0.0	981514.13	1988
T184	-131.5908	55.1688	-7.2	-7.2	-6.7	2.0	981513.56	1988
T185	-131.5872	55.1695	-7.3	-7.4	-6.8	1.0	981513.56	1988
T186	-131.5833	55.1680	-7.7	-7.8	-7.1	3.0	981512.88	1988
T187	-131.5763	55.1695	-8.1	-8.2	-7.2	2.0	981512.63	1988
T188	-131.5517	55.0483	11.8	8.6	8.8	92.0	981513.75	1988
T189	-131.5528	55.0583	9.2	7.6	7.9	47.0	981516.38	1988
T190	-131.5583	55.0258	9.9	9.1	9.1	23.0	981516.38	1988
T191	-131.5675	55.0338	12.2	9.3	9.3	84.0	981513.69	1988
T192	-131.6025	54.9987	10.7	10.7	10.7	0.0	981517.13	1988
T193	-131.3850	55.1925	-11.9	-12.0	-11.4	2.0	981510.81	1988
T194	-131.3838	55.1958	-11.5	-11.6	-11.2	3.0	981511.38	1988
T195	-131.3808	55.1928	-10.7	-10.8	-10.3	5.0	981511.81	1988
T196	-131.3758	55.1900	-10.4	-10.6	-10.2	6.0	981511.75	1988
T197	-131.3713	55.1888	-10.3	-10.5	-10.2	6.0	981511.75	1988
T198	-131.3713	55.1830	-11.7	-11.9	-11.4	4.0	981510.00	1988
T199	-131.3645	55.1780	-10.6	-10.7	-10.3	4.0	981510.75	1988
T200	-131.3500	55.1703	-3.2	-7.5	-7.2	126.0	981505.94	1988
T201	-131.3347	55.1712	-6.8	-6.9	-6.8	1.0	981514.13	1988
T202	-131.3267	55.1853	-4.3	-4.4	-4.4	2.0	981517.81	1988
T203	-131.2825	55.1787	-4.8	-4.9	-4.9	3.0	981516.69	1988
T204	-131.2172	55.1417	-5.0	-5.1	-5.1	2.0	981513.38	1988
T205	-131.4005	55.1995	-13.2	-13.2	-12.5	0.0	981510.38	1988
T206	-131.5683	55.1647	-8.6	-8.7	-7.4	4.0	981511.63	1988
T207	-131.5622	55.1653	-9.4	-9.6	-7.6	4.0	981510.81	1988

T208	-131.5630	55.1555	-7.6	-7.7	-6.5	2.0	981512.00	1988
T209	-131.5567	55.1580	-9.9	-10.0	-7.6	3.0	981509.88	1988
T210	-131.5312	55.1503	-13.3	-13.5	-8.6	3.0	981505.75	1988
T211	-131.5303	55.1372	-10.7	-10.9	-9.0	6.0	981506.94	1988
T212	-131.5408	55.1238	-10.5	-10.7	-6.5	6.0	981506.06	1988
T213	-131.5137	55.1195	16.1	-12.2	-9.9	831.0	981454.63	1988
T214	-131.5167	55.1375	-6.3	-12.4	-10.7	177.0	981495.25	1988
T215	-131.5170	55.1320	-3.8	-11.9	-10.1	238.0	981491.56	1988
T216	-131.5087	55.1292	0.2	-12.4	-10.7	371.0	981482.88	1988
T217	-131.4913	55.1270	-2.7	-14.8	-12.7	353.0	981481.38	1988
T218	-131.4620	55.1330	-16.8	-18.9	-15.7	60.0	981495.44	1988
T219	-131.4433	55.1470	-9.5	-19.7	-15.6	297.0	981481.50	1988
T220	-131.4200	55.1533	-14.0	-21.2	-16.8	210.0	981485.75	1988
T221	-131.6045	55.1828	-8.3	-8.5	-8.0	6.0	981513.25	1988
T222	-131.5938	55.2067	-8.5	-8.6	-7.0	2.0	981515.44	1988
T223	-131.5978	55.2222	-6.8	-6.9	-5.9	2.0	981518.44	1988
T224	-131.6070	55.2712	-2.7	-2.9	-2.6	5.0	981526.44	1988
T225	-131.5897	55.2587	-4.9	-5.0	-2.0	3.0	981523.38	1988
T226	-131.5728	55.2705	-4.8	-4.8	-3.9	0.0	981524.75	1988
T227	-131.5478	55.2622	-3.3	-3.3	-2.2	0.0	981525.56	1988
T228	-131.5475	55.2692	-4.2	-4.1	-3.5	-2.0	981525.50	1988
T229	-131.5337	55.2675	-3.7	-3.7	-3.3	0.0	981525.63	1988
T230	-131.5047	55.2642	-4.3	-4.4	-4.2	3.0	981524.44	1988
T231	-131.5097	55.2605	-2.8	-2.9	-2.6	3.0	981525.63	1988
T232	-131.5645	55.1738	-10.9	-10.9	-7.9	-2.0	981510.63	1988
T233	-131.5628	55.1738	-11.4	-11.4	-8.2	-1.0	981510.06	1988
T234	-131.5828	55.1825	-10.1	-10.2	-8.2	2.0	981511.75	1988
T235	-131.5883	55.1762	-8.4	-8.4	-7.6	0.0	981513.13	1988
T236	-131.5967	55.1760	-8.9	-8.9	-8.3	0.0	981512.69	1988
T237	-131.5980	55.1795	-9.0	-9.0	-8.4	0.0	981512.88	1988
T238	-131.5792	55.1938	-12.8	-13.0	-7.8	6.0	981509.69	1988
T239	-131.5795	55.2108	10.7	-7.0	-4.9	518.0	981486.38	1988
T240	-131.5847	55.2208	10.4	-4.6	-3.3	438.0	981494.44	1988
T241	-131.5847	55.2383	1.2	-4.7	-3.1	174.0	981511.63	1988
T243	-131.4895	55.2405	-2.2	-2.7	-2.2	15.0	981523.38	1988
T244	-131.4322	55.2155	-10.1	-10.3	-9.9	5.0	981514.25	1988
T245	-131.4400	55.2030	-4.7	-14.0	-13.3	273.0	981493.44	1988
T246	-131.4492	55.1837	-3.3	-16.4	-14.6	383.0	981482.81	1988
T247	-131.4650	55.1850	-3.3	-16.3	-13.4	383.0	981483.00	1988
T248	-131.4613	55.1988	-0.5	-13.6	-12.1	383.0	981486.94	1988
T249	-131.4847	55.1808	-2.6	-19.3	-14.0	487.0	981473.38	1988
T250	-131.4395	55.1763	24.3	-22.5	-17.0	1371.0	981416.75	1988
T251	-131.4403	55.1613	38.9	-30.7	-18.1	2041.0	981367.13	1988
T253	-131.5012	55.2133	-3.7	-11.2	-9.7	218.0	981500.44	1988
T254	-131.4958	55.2305	0.7	-6.6	-5.8	216.0	981506.56	1988
T255	-131.4630	55.2242	-7.8	-8.1	-7.6	6.0	981517.13	1988
T256	-131.4387	55.2137	-11.7	-11.9	-11.4	5.0	981512.56	1988
T257	-131.4645	55.2113	-9.7	-14.3	-13.4	137.0	981502.00	1988
T258	-131.3820	55.1825	-14.2	-14.4	-13.3	7.0	981507.25	1988
T259	-131.5737	55.1005	20.3	2.3	3.9	528.0	981485.69	1988
T260	-131.4012	55.1583	28.1	-30.8	-16.1	1727.0	981385.50	1988
T261	-131.3570	55.1405	-12.6	-12.8	-11.9	6.0	981505.38	1988
T262	-131.3867	55.0120	3.5	3.1	3.3	11.0	981510.00	1988
T263	-131.4295	55.0122	5.8	5.8	6.1	0.0	981513.38	1988
T264	-131.5842	55.0520	13.6	9.3	9.3	125.0	981512.81	1988
T265	-131.5745	55.0378	13.2	9.5	9.5	106.0	981512.94	1988
T266	-131.5903	55.0242	13.0	10.2	10.2	81.0	981513.94	1988
T267	-131.5778	55.0308	13.8	10.3	10.3	102.0	981513.31	1988
T268	-131.6458	55.0350	8.2	7.9	7.9	9.0	981516.94	1988
T269	-131.6430	55.0242	8.7	8.5	8.5	5.0	981516.81	1988
T270	-131.6195	55.0038	8.7	8.6	8.6	3.0	981515.31	1988
T271	-131.6408	55.0128	8.8	8.4	8.4	13.0	981515.25	1988

T272	-131.6178	55.0142	9.7	9.4	9.4	8.0	981516.69	1988
T273	-131.5662	55.0055	12.6	12.5	12.5	4.0	981519.25	1988
T275	-131.5712	55.1188	3.7	-0.7	-0.2	131.0	981508.06	1988
T276	-131.5728	55.1113	8.0	0.9	1.3	209.0	981504.31	1988
T277	-131.5638	55.1042	10.1	1.4	2.1	254.0	981501.56	1988
T278	-131.5730	55.0972	12.1	4.2	4.6	231.0	981505.13	1988
T279	-131.5783	55.0903	11.0	5.7	6.0	156.0	981510.56	1988
T280	-131.5808	55.0855	9.6	4.4	4.6	151.0	981509.19	1988
T281	-131.5870	55.0717	10.0	6.1	6.2	114.0	981511.94	1988
T282	-131.5897	55.0650	12.4	7.9	8.0	133.0	981512.00	1988
T283	-131.5872	55.0588	13.0	8.3	8.3	138.0	981511.56	1988
T284	-131.5862	55.0505	13.1	8.9	8.9	125.0	981512.19	1988
T285	-131.5797	55.0437	12.6	8.5	8.5	119.0	981511.63	1988
T286	-131.5692	55.0337	12.9	9.2	9.2	106.0	981512.25	1988
T287	-131.5558	55.0247	10.2	8.9	8.9	38.0	981515.19	1988
T288	-131.6008	55.0158	11.7	10.3	10.3	41.0	981515.69	1988
T289	-131.6050	55.0038	11.7	10.2	10.2	43.0	981514.50	1988
T290	-131.5703	55.0712	6.2	5.1	5.3	30.0	981515.94	1988
T291	-131.5637	55.0647	6.6	6.0	6.2	17.0	981517.00	1988
T292	-131.5395	55.0603	7.4	6.6	7.2	22.0	981517.00	1988
T293	-131.5617	55.0863	7.7	3.6	4.2	121.0	981510.19	1988
T294	-131.5478	55.0958	-2.3	-3.1	-0.1	23.0	981510.25	1988
T295	-131.4908	55.0128	10.6	10.3	10.7	7.0	981517.56	1988
T296	-131.5053	55.0250	8.8	8.6	9.5	6.0	981516.94	1988
T297	-131.5022	55.0330	7.7	7.6	10.3	3.0	981516.75	1988
T299	-131.5422	55.1187	-11.1	-12.9	-8.3	52.0	981500.56	1988
T300	-131.4208	55.0738	17.8	-16.5	-10.0	1004.0	981436.06	1990
T301	-131.4358	55.0612	47.4	-11.6	-3.6	1729.0	981396.38	1990
T302	-131.4513	55.0492	51.5	-18.6	0.4	2055.0	981368.75	1990
T303	-131.5247	55.0953	6.2	-5.6	-2.5	346.0	981488.31	1990
T304	-131.5580	55.1933	44.2	-24.7	-14.7	2020.0	981377.06	1990