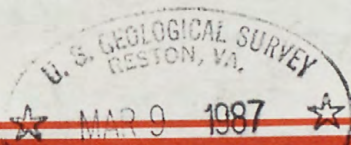
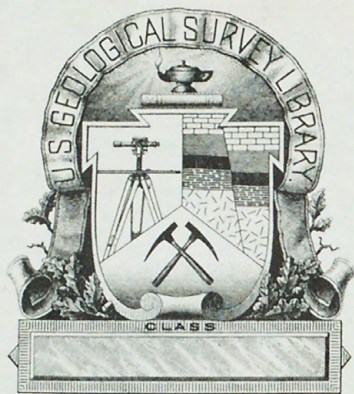


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Principal facts for gravity stations in the
Nevada portion of the Mariposa 2° sheet

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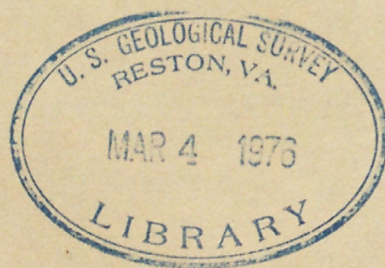
By

^{on}
D. L. Healey 1927-

Open-file Report 76-58
1976

This report is preliminary and has not been
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Geological Survey standards and nomenclature.

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PRINCIPAL FACTS FOR GRAVITY STATIONS IN THE
NEVADA PORTION OF THE MARIPOSA 2° SHEET

By

^{ow}
D. L. Healey, 1927-

The northeast corner of the Mariposa 2° topographic sheet occurs within the State of Nevada (fig. 1) and includes parts of Mineral and Esmeralda Counties. In this area field crews of the U.S. Geological Survey have established 95 gravity observations in conjunction with geologic studies being made as part of the Nevada tectonic project. The principal gravity reference base station was Tonopah J, located at the Nye County Airport, 8 miles (12.9 km) east of Tonopah, Nev. The observed gravity value for this base is 979,476.15 mGals (Department of the Air Force, written commun., 1969).

These data were reduced using standard reduction procedures and established computer programs. The standard reduction density of 2.67 mg/m^3 was used, and the second reduction density was arbitrarily assumed to be 2.20 mg/m^3 . The gravity stations were located where elevations were shown on the available topographic maps. The latitude and longitude values were scaled from these maps. Terrain corrections through Zone H (Hammer, 1939) were either computed or estimated for each station. The total terrain

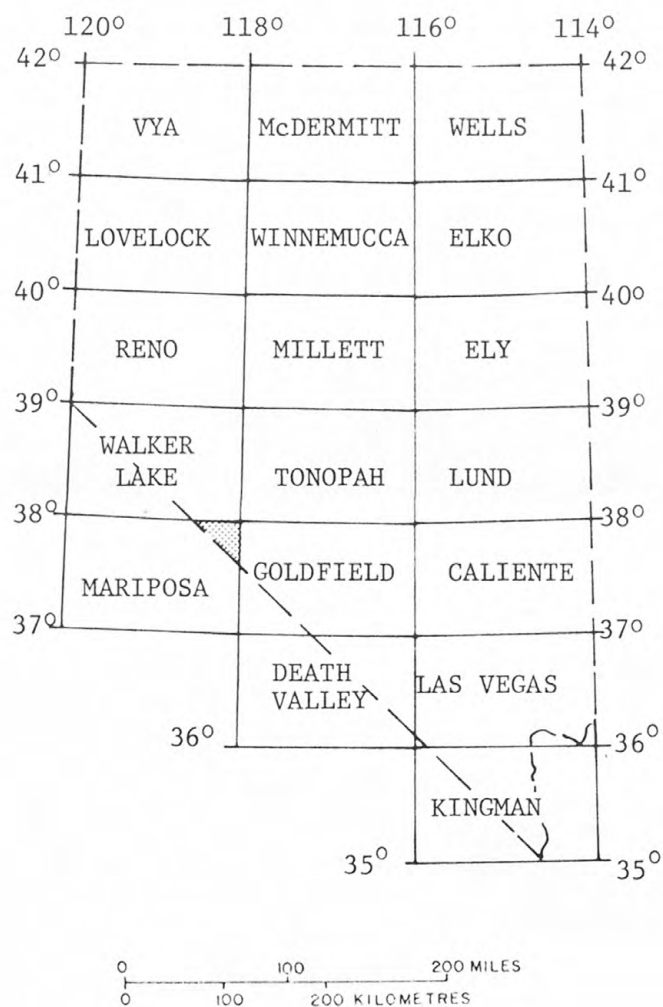


Figure 1.--Index map of Nevada showing names of the 1°X2° topographic sheets that cover the State. The area of interest is shaded.

corrections were determined to a radial distance of 166.7 km by the Plouff (1966) computer program. This program utilizes two sets of maps where the topography is digitized in 1X1 minute and 3X3 minutes of latitude and longitude. The accuracy of the data herein reported, based on estimates of possible errors in the observed gravity, latitude, elevation, and terrain corrections, is thought to be ± 0.3 mGals in the valley areas. In the elevated ranges, where terrain correction errors may be larger, the data may be in error by as much as 1 mGal.

These data have not been converted to the 1971 IGSN (International Gravity Standardization Network. However, such a conversion could be accomplished by subtracting 13.90 mGals from the observed gravity values (Defense Mapping Agency, written commun., 1974) and recomputing, using the 1967 International Gravity formula (International Association of Geodesy, 1971, p. 60).

The principal facts for the Mariposa area gravity stations are listed in table 1. The column headings on each page of the table are explained below.

<u>Column heading of table 1</u>	<u>Definition</u>
STATION	Gravity station number.
LATITUDE	North latitude in degrees, minutes, and hundredths of minutes.
LONGITUDE	West longitude in degrees, minutes and hundredths of minutes.
ELEV	Elevation of station, in feet.
OBS GRV	Observed gravity, in milligals.
F.A.	Free-air anomaly, in milligals.
S.B.1	Simple Bouguer anomaly, in milligals (reduction density of 2.67 mg/m^3).
S.B.2	Simple Bouguer anomaly in milligals for the second reduction density (2.20 mg/m^3 in this case).
CC	Curvature correction, in milligals.
TC	Hand terrain correction computed through Zone H of the Hammer (1939) system.
TER	Total computer-determined terrain correction in milligals carried out to a radial distance of 166.7 km.
(NEAR)	Part of the total terrain correction that represents contribution of compartments that intersect the circular inner radius.

<u>Column heading of table 1</u>	<u>Definition</u>
TOT	Total terrain correction--hand plus computer values, in milligals.
C.B.1	Complete Bouguer anomaly, in milligals at the reduction density of 2.67 mg/m ³ .
C.B.2	Complete Bouguer anomaly, in milligals at the second reduction density (2.20 mg/m ³ in this case).
ACC	No significance in this listing.
STA	Repeat of the gravity station number.

Table 1.--Principal facts for gravity stations in the Nevada portion of the Mariposa 2° sheet

[pages 8 through 9]

SUMMARY FOR 95 STATIONS IN NEVADA MARIPOSA SHEET.

COMPUTER TERRAIN CORRECTIONS CARRIED FROM NONCIRCULAR INNER RADIUS OF 2.615 TO 166.7 KILOMETRES. DENSITIES ARE 2.67 AND 2.20 MG/M³. DENSITY FO 2.67 MG/M³ IS USED FOR VALUES IN COLUMNS LABELED CC, TC, TER, (NEAR), TOT, TC=HAND CORRECTION, AND TER=TOTAL COMPUTER CORRECTION. (NEAR)=PART OF TOTAL THAT REPRESENTS CONTRIBUTION OF COMPARTMENTS THAT INTERSECT INNER CIRCULAR RADIUS. TOT=HAND PLUS COMPUTER TERRAIN.

SUMMARY OF THE GRAVITY STATIONS FOR NEVADA MARIPOSA SHEET

STATION	LATITUDE	LONGITUDE	ELEV	GRS GRAV	F.A.	S.R.1	S.R.2	CC	TC	TER (NEAR)	TOT	C.B.1	C.B.2	ACC	STA
4064	37 54.57	118 6.42	5108.0	79478.25	-37.61	-211.83	-181.16	1.42	0.10	1.42	0.00	1.52	-211.73	-181.08	4064
4065	37 53.77	118 6.32	5037.0	79475.84	-45.53	-217.33	-187.09	1.41	0.10	1.54	0.00	1.64	-217.10	-186.90	4065
4066	37 53.13	118 6.30	4999.0	79475.12	-48.89	-219.39	-189.38	1.41	0.10	1.61	0.00	1.71	-219.09	-189.13	4066
4067	37 52.31	118 6.24	4977.0	79478.06	-46.82	-216.57	-186.69	1.41	0.10	1.66	0.00	1.76	-216.22	-186.40	4067
4068	37 51.87	118 6.17	4984.0	79478.61	-44.97	-214.96	-185.04	1.41	0.10	1.66	0.00	1.76	-214.61	-184.75	4068
4069	37 51.20	118 6.13	4970.0	79478.74	-45.18	-214.69	-184.86	1.41	0.10	1.75	0.00	1.85	-214.26	-184.49	4069
4070	37 50.52	118 6.10	4959.0	79476.60	-47.37	-216.50	-186.73	1.41	0.10	1.84	0.00	1.94	-215.97	-186.29	4070
4071	37 49.43	118 6.00	4961.0	79471.25	-50.94	-220.14	-190.36	1.41	0.06	1.98	0.00	2.04	-219.51	-189.83	4071
4072	37 49.05	118 5.98	4952.0	79470.61	-51.88	-220.77	-191.04	1.40	0.06	2.05	0.00	2.11	-220.06	-190.46	4072
4073	37 48.39	118 5.90	4937.0	79469.51	-53.42	-221.81	-192.17	1.40	0.06	2.17	0.00	2.23	-220.98	-191.48	4073
4074	37 47.52	118 5.86	4918.0	79466.56	-56.89	-224.63	-195.10	1.40	0.06	2.38	0.00	2.44	-223.59	-194.25	4074
4075	37 47.02	118 5.83	4905.0	79465.11	-58.84	-226.13	-196.68	1.40	0.06	2.51	0.00	2.57	-224.96	-195.71	4075
4076	37 46.35	118 5.77	4908.0	79462.41	-60.28	-227.68	-198.21	1.40	0.06	2.66	0.00	2.72	-226.35	-197.12	4076
4077	37 45.54	118 5.70	4910.0	79460.56	-60.76	-228.23	-198.75	1.40	0.06	2.88	0.00	2.94	-226.68	-197.48	4077
4078	37 45.55	118 5.08	4873.0	79464.96	-59.86	-226.06	-196.80	1.40	0.06	2.64	0.00	2.70	-224.76	-195.73	4078
4079	37 45.55	118 3.99	4825.0	79474.16	-55.17	-219.73	-190.76	1.39	0.06	2.35	0.00	2.41	-218.71	-189.92	4079
4080	37 45.56	118 2.85	4776.0	79482.40	-51.55	-214.44	-185.77	1.38	0.06	2.33	0.00	2.39	-213.43	-184.94	4080
4081	37 46.45	118 2.86	4777.0	79478.15	-57.00	-219.93	-191.25	1.38	0.06	2.05	0.00	2.11	-219.20	-190.65	4081
4082	37 47.32	118 2.68	4781.0	79473.11	-62.93	-225.99	-197.29	1.38	0.06	1.83	0.00	1.89	-225.49	-196.87	4082
4083	37 49.84	118 5.51	4926.0	79475.02	-51.06	-219.07	-189.49	1.40	0.10	1.78	0.00	1.88	-218.59	-189.10	4083
4084	37 50.10	118 4.60	4878.0	79478.21	-52.76	-219.13	-189.85	1.40	0.10	1.56	0.00	1.66	-218.86	-189.62	4084
4085	37 50.22	118 3.86	4837.0	79480.56	-54.44	-219.41	-190.37	1.39	0.13	1.45	0.00	1.58	-219.22	-189.21	4085
4086	37 50.63	118 3.06	4812.0	79485.52	-52.43	-216.55	-187.66	1.39	0.15	1.33	0.00	1.48	-216.46	-187.58	4086
4087	37 50.68	118 2.00	4796.0	79483.90	-55.62	-219.20	-190.40	1.39	0.15	1.23	0.00	1.38	-219.20	-190.41	4087
4088	37 50.79	118 1.06	4800.0	79485.02	-54.29	-218.00	-189.18	1.39	0.15	1.16	0.00	1.31	-218.07	-189.24	4088
4089	37 51.00	118 0.13	4773.0	79491.08	-51.07	-213.86	-185.21	1.38	0.15	1.16	0.00	1.31	-213.94	-185.27	4089
4090	37 48.84	118 2.41	4767.0	79471.83	-67.74	-230.33	-201.71	1.38	0.06	1.50	0.00	1.56	-230.14	-201.56	4090
4091	37 45.75	118 7.72	5138.0	79449.31	-50.89	-226.13	-195.28	1.43	0.23	3.94	0.00	4.17	-223.38	-193.02	4091
4092	37 45.52	118 8.37	5280.0	79441.32	-45.20	-225.28	-193.58	1.44	0.30	4.55	0.00	4.85	-221.87	-190.77	4092
4093	37 47.29	118 5.07	4879.0	79469.43	-57.36	-223.76	-194.47	1.40	0.06	2.16	0.00	2.22	-222.93	-193.79	4093
4094	37 48.16	118 5.07	4891.0	79470.64	-56.28	-223.10	-193.73	1.40	0.06	1.97	0.00	2.03	-222.47	-193.22	4094
4095	37 49.05	118 5.07	4902.0	79472.53	-54.65	-221.84	-192.41	1.40	0.06	1.79	0.00	1.85	-221.39	-192.04	4095
4096	37 48.18	118 3.99	4835.0	79471.50	-60.72	-225.62	-196.59	1.39	0.06	1.76	0.00	1.82	-225.19	-196.24	4096
4097	37 49.45	118 4.63	4879.0	79474.90	-55.03	-221.44	-192.14	1.40	0.06	1.65	0.00	1.71	-221.12	-191.88	4097
4098	37 47.25	118 6.48	4942.0	79463.55	-57.25	-225.81	-196.14	1.40	0.10	2.73	0.00	2.83	-224.38	-194.96	4098
4099	37 47.64	118 7.48	5119.0	79456.10	-48.64	-223.23	-192.49	1.42	0.13	2.97	0.00	3.10	-221.55	-191.12	4099
4100	37 47.58	118 9.40	5622.0	79474.72	-32.65	-224.40	-190.64	1.47	0.30	3.90	0.00	4.20	-221.67	-188.39	4100
4101	37 49.73	118 12.26	6487.0	79380.14	0.93	-220.32	-181.37	1.51	0.67	4.73	0.00	5.40	-216.43	-178.17	4101
4102	37 49.93	118 7.32	5135.0	79465.66	-40.90	-216.04	-185.21	1.43	0.13	2.25	0.00	2.38	-215.09	-184.43	4102
4103	37 49.93	118 10.58	5967.0	79416.64	-11.73	-215.24	-179.42	1.49	0.32	3.45	0.00	3.77	-212.97	-177.54	4103
4104	37 50.94	118 13.04	6968.0	79358.04	22.27	-215.38	-173.55	1.52	1.55	4.22	0.00	5.77	-211.13	-170.04	4104
4105	37 51.66	118 13.89	7099.0	79352.80	28.29	-213.83	-171.21	1.51	0.69	4.36	0.00	5.05	-210.30	-168.30	4105
4106	37 52.70	118 15.90	7865.0	79307.26	53.21	-215.03	-167.82	1.48	1.26	5.16	0.00	6.42	-210.09	-163.74	4106
4107	37 53.48	118 12.77	6586.0	79389.43	14.06	-210.56	-171.02	1.52	1.16	3.11	0.00	4.27	-207.81	-168.75	4107
4108	37 53.48	118 9.00	5282.0	79465.60	-32.32	-212.47	-180.76	1.44	0.25	2.19	0.00	2.44	-211.47	-179.93	4108
4109	37 53.48	118 7.87	5110.0	79472.29	-41.80	-216.08	-185.40	1.42	0.09	1.91	0.00	2.00	-215.51	-184.93	4109
4110	37 53.98	118 8.50	5180.0	79470.92	-37.32	-213.99	-182.89	1.43	0.20	2.05	0.00	2.25	-213.17	-182.21	4110
4111	37 54.97	118 7.88	5145.0	79474.70	-38.27	-213.75	-182.86	1.43	0.10	1.76	0.00	1.86	-213.32	-182.50	4111
4112	37 54.34	118 9.00	5260.0	79468.70	-32.54	-211.94	-180.36	1.44	0.25	2.13	0.00	2.38	-211.00	-179.59	4112
4113	37 55.22	118 9.00	5337.0	79471.85	-23.44	-205.46	-173.42	1.45	0.27	1.84	0.00	2.11	-204.79	-172.87	4113

SUMMARY OF THE GRAVITY STATIONS FOR NEVADA MARIPOSA SHEET

STATION	LATITUDE	LONGITUDE	ELEV	ORG GRAV	F.A.	S.R.1	S.R.2	CC	TC	TER (NEAR)	TOT	C.R.1	C.R.2	ACC	STA
4114	37 54.34	118 10.07	5465.0	79459.00	-22.97	-209.36	-176.55	1.46	0.50	2.33	0.00	2.83	-207.99	-175.42	4114
4115	37 55.21	118 11.18	5905.0	79436.36	-5.53	-206.93	-171.47	1.49	0.65	2.14	0.00	2.79	-205.62	-170.40	4115
4116	37 56.96	118 12.27	6321.0	79415.26	9.92	-205.67	-167.72	1.51	0.17	1.81	0.00	1.98	-205.20	-167.33	4116
4117	37 56.38	118 5.25	5475.0	79480.00	-4.01	-190.74	-157.87	1.46	0.25	0.94	0.00	1.19	-191.01	-158.09	4117
4118	37 57.02	118 4.07	5406.0	79488.15	-3.27	-187.65	-155.20	1.45	0.25	0.90	0.00	1.15	-187.95	-155.44	4118
4119	37 54.96	118 6.95	5188.0	79476.76	-32.15	-209.10	-177.95	1.43	0.10	1.41	0.00	1.51	-209.02	-177.88	4119
4120	37 55.35	118 7.44	5279.0	79475.04	-25.89	-205.94	-174.24	1.44	0.10	1.39	0.00	1.49	-205.89	-174.20	4120
4121	37 55.78	118 8.14	5410.0	79470.84	-18.40	-202.92	-170.44	1.45	0.15	1.41	0.00	1.56	-202.81	-170.35	4121
4122	37 56.09	118 8.45	5507.0	79466.30	-14.28	-202.10	-169.04	1.46	0.15	1.39	0.00	1.54	-202.02	-168.97	4122
4123	37 56.37	118 8.90	5650.0	79457.90	-9.64	-202.35	-168.42	1.47	0.15	1.33	0.00	1.48	-202.34	-168.42	4123
4124	37 57.65	118 9.58	6003.0	79441.68	5.45	-199.30	-163.25	1.50	0.15	1.18	0.00	1.33	-199.46	-163.39	4124
4125	37 57.84	118 10.06	6029.0	79441.62	7.55	-198.08	-161.88	1.50	0.16	1.19	0.00	1.35	-198.22	-162.00	4125
4126	37 57.84	118 11.19	6170.0	79432.91	12.09	-198.34	-161.30	1.50	0.17	1.36	0.00	1.53	-198.32	-161.28	4126
4127	37 57.84	118 12.28	6308.0	79418.82	10.97	-204.17	-166.30	1.51	0.24	1.53	0.00	1.77	-203.91	-166.08	4127
4128	37 56.97	118 13.38	6485.0	79403.05	13.11	-208.08	-169.14	1.51	0.62	2.09	0.00	2.71	-206.87	-168.15	4128
4129	37 57.84	118 14.58	6529.0	79403.74	16.66	-206.02	-166.82	1.51	0.58	2.09	0.00	2.67	-204.87	-165.87	4129
4130	37 59.52	118 11.22	5723.0	79462.11	-3.16	-198.36	-164.00	1.48	0.50	1.47	0.00	1.97	-197.86	-163.59	4130
4131	37 58.83	118 10.57	5833.0	79455.85	1.92	-197.03	-162.00	1.49	0.55	1.23	0.00	1.78	-196.73	-161.76	4131
4132	37 58.23	118 9.93	5942.0	79448.79	5.98	-196.68	-161.01	1.49	0.20	1.13	0.00	1.33	-196.84	-161.14	4132
4133	37 59.69	118 18.13	6770.0	79391.90	24.77	-206.13	-165.48	1.52	0.75	1.59	0.00	2.34	-205.31	-164.81	4133
4134	37 59.26	118 18.71	6956.0	79379.35	30.33	-206.92	-165.16	1.52	0.80	1.77	0.00	2.57	-205.87	-164.29	4134
4135	37 57.00	118 17.89	8465.0	79279.57	75.63	-213.08	-162.26	1.43	1.96	6.06	0.00	8.02	-206.49	-156.83	4135
4136	37 58.62	118 19.38	7147.0	79367.62	37.48	-206.28	-163.37	1.51	0.71	2.00	0.00	2.71	-205.08	-162.38	4136
4137	37 58.38	118 19.74	7140.0	79368.73	38.28	-205.24	-162.37	1.51	1.00	2.01	0.00	3.01	-203.75	-161.14	4137
4138	37 57.85	118 20.07	7049.0	79375.42	37.19	-203.22	-160.90	1.51	1.08	2.11	0.00	3.19	-201.55	-159.52	4138
4139	37 57.78	118 20.99	6650.0	79397.39	21.77	-205.04	-165.11	1.52	1.49	2.24	0.00	3.73	-202.82	-163.29	4139
4140	37 56.36	118 20.92	6367.0	79394.33	-5.81	-222.97	-184.74	1.51	0.73	4.41	0.00	5.14	-219.34	-181.75	4140
4141	37 56.23	118 22.09	6331.0	79393.69	-9.65	-225.58	-187.57	1.51	0.12	3.66	0.00	3.78	-223.31	-185.70	4141
4142	37 56.60	118 22.87	6245.0	79402.89	-9.07	-222.06	-184.57	1.51	0.42	3.26	0.00	3.68	-219.89	-182.78	4142
4143	37 57.41	118 21.94	6439.0	79400.80	5.89	-213.72	-175.06	1.51	1.02	2.66	0.00	3.68	-211.55	-173.27	4143
4144	37 55.99	118 23.62	6262.0	79397.67	-9.92	-224.18	-186.46	1.51	0.18	3.24	0.00	3.42	-222.27	-184.89	4144
4145	37 55.57	118 24.08	6280.0	79395.18	-11.99	-226.18	-188.47	1.51	0.18	3.25	0.00	3.43	-224.26	-186.89	4145
4146	37 54.53	118 23.21	6682.0	79371.00	3.13	-224.77	-184.66	1.52	0.77	4.34	0.00	5.11	-221.18	-181.70	4146
4147	37 54.54	118 24.30	6351.0	79387.46	-11.53	-228.15	-190.02	1.51	0.31	4.00	0.00	4.31	-225.34	-187.71	4147
4148	37 55.40	118 25.39	6056.0	79412.69	-15.28	-221.83	-185.47	1.50	0.16	3.22	0.00	3.38	-219.95	-183.92	4148
4149	37 54.80	118 27.49	5794.0	79426.61	-25.11	-222.72	-187.94	1.48	0.49	3.36	0.00	3.85	-220.36	-185.99	4149
4150	37 54.14	118 27.27	5773.0	79424.77	-27.96	-224.86	-190.20	1.48	0.20	3.37	0.00	3.57	-222.77	-188.48	4150
4151	37 53.14	118 27.26	5762.0	79423.25	-29.06	-225.58	-190.99	1.48	0.15	3.68	0.00	3.83	-223.23	-189.05	4151
4152	37 53.72	118 26.50	5916.0	79413.95	-24.73	-226.51	-190.99	1.49	0.15	3.68	0.00	3.83	-224.17	-189.06	4152
4153	37 54.23	118 26.31	5933.0	79414.33	-23.50	-225.85	-190.23	1.49	0.16	3.52	0.00	3.68	-223.67	-188.43	4153
4154	37 54.28	118 25.75	6038.0	79407.88	-20.15	-226.09	-189.84	1.50	0.20	3.62	0.00	3.82	-223.77	-187.92	4154
4155	37 55.05	118 24.80	6179.0	79400.51	-15.39	-226.14	-189.04	1.50	0.20	3.45	0.00	3.65	-224.00	-187.28	4155
4156	37 56.29	118 26.66	6940.0	79363.08	16.89	-219.81	-178.15	1.52	1.27	2.22	0.00	3.49	-217.84	-176.52	4156
4157	37 58.52	118 29.27	7729.0	79321.37	46.06	-217.55	-171.14	1.49	1.02	2.25	0.00	3.27	-215.77	-169.68	4157
4158	37 57.59	118 29.47	8089.0	79294.85	54.72	-221.17	-172.60	1.46	1.71	3.77	0.00	5.48	-217.15	-169.29	4158

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