UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Principal Facts for Gravity Stations in Central Connecticut

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INTRODUCTION

This report presents part of the work undertaken by the U.S. Geological Survey (USGS) in the Early Mesozoic Basins Project under the Strategic and Critical Minerals Program. Gravity measurements were made within and near the Hartford basin by students at the University of Connecticut at Storrs, under the supervision of Associate Professor John J. Dowling. The work was supported by the U.S. Geological Survey under contract with the University of Connecticut. Between Oct 5, 1983 and Feb 10, 1984, a total of 235 field measurements were made in the following USGS 7.5' quadrangles in Connecticut: Rockville, Manchester, Hartford North, and Marlborough (figures 1,2). The data are presented as a list of principal facts in Appendix B and in digital form on a diskette. Figure 2 shows contoured Bouguer anomaly.

DATA COLLECTION

Gravity observations were made using a Worden Master gravity meter #908. The reference base used was "Beach" (Appendix 1) on the campus of the University of Connecticut at Storrs, which had been previously tied by Banks (1982) to the absolute station 15212A at Wesleyen University in Middletown, CT (Morelli and others, 1974, p.52). Station 15212A is one of the stations used to establish the International Gravity Standardization Net of 1971 (Morelli and others, 1974, p.97). Eleven secondary bases were established in the area of the survey, tied to base "BEACH", and used to correct for drift of the gravity meter. The meter was read on one of these bases at the beginning and end of each survey day and at intervals of about 2 hours. The reading precision of this survey was estimated as $\pm$0.14 milligals, derived from repeat readings of two of the secondary bases.

ELEVATION CONTROL

Station elevations were obtained from 3 types of reference elevation as follows:

1. 23% from benchmarks (National Geodetic Survey and USGS)
2. 67% from "spot" elevations marked on USGS 1:24,000 scale topographic maps
3. 10% from lake and river elevations marked on USGS 1:24,000 scale topographic maps

A few of the bench marks were not actually observed but precise descriptions of their locations permitted reasonably accurate recovery of the original locations. The uncertainty for station elevations ranges from less than ± 0.5 feet for bench marks to ± 3 feet for spot and water level elevations. At the Bouguer density of 2.67 gm/cm^3, these elevation uncertainties translate to uncertainties in the Bouguer anomaly value ranging from ± 0.03 to ± 0.18 milligals (0.06 milligals per foot).

DATA REDUCTION

Geographic coordinates of each station were obtained by measuring the x and y coordinates with reference to the corners of each 7.5 minute topographic map using a digitizing tablet under computer control. Latitude and longitude were determined by interpolation after fitting a surface to the corner points. Bouguer gravity anomaly values were computed using the 1967 gravity formula (International Association of Geodesy, 1967) with a reduction density of 2.67 g/cm^3 . Terrain corrections were made by computer (Plouff, 1977) for the region extending radially from 0.895 to 167 km from the station. These computed terrain corrections use mean-elevation data digitized on a 30-second grid for correction from 0.895 to 5 km, a 1-minute terrain grid for corrections from 5 to 21 km, and a 3-minute terrain grid for corrections from 21 to 166.7 km. Correction from 0 to 0.895 km was ignored because interpolation from the 30-second grid for this zone is inaccurate. The terrain correction includes a correction for the Earth's curvature. Reduction procedures are described in greater detail by Cordell and others (1982).

Figure 2 which shows the station locations and contours of complete Bouguer gravity anomaly, was prepared from a grid with an interval of 0.5 km by means of a computer program (Webring, 1981) based on minimum curvature (Briggs, 1974). The contour plot was generated using the computer program of Godson and Webring (1982).

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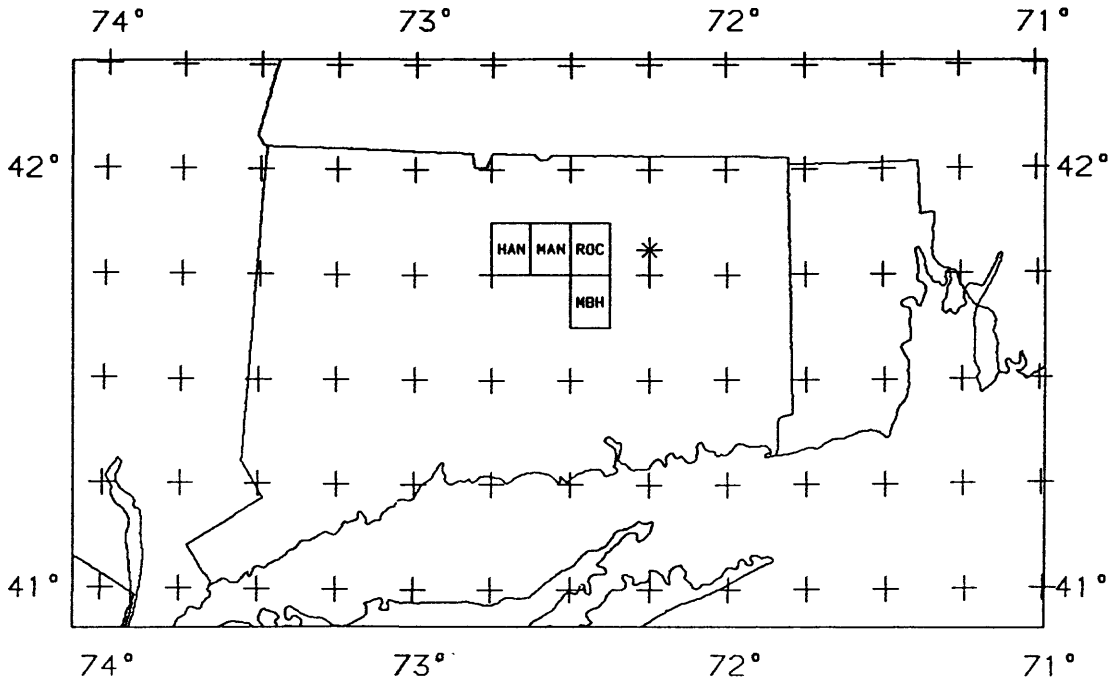

Figure 1 Index map of Connecticut and adjacent states showing location of quadrangles surveyed. The quadrangle codes are given in Appendix 1. The star shows location of base station at Storrs, CT.

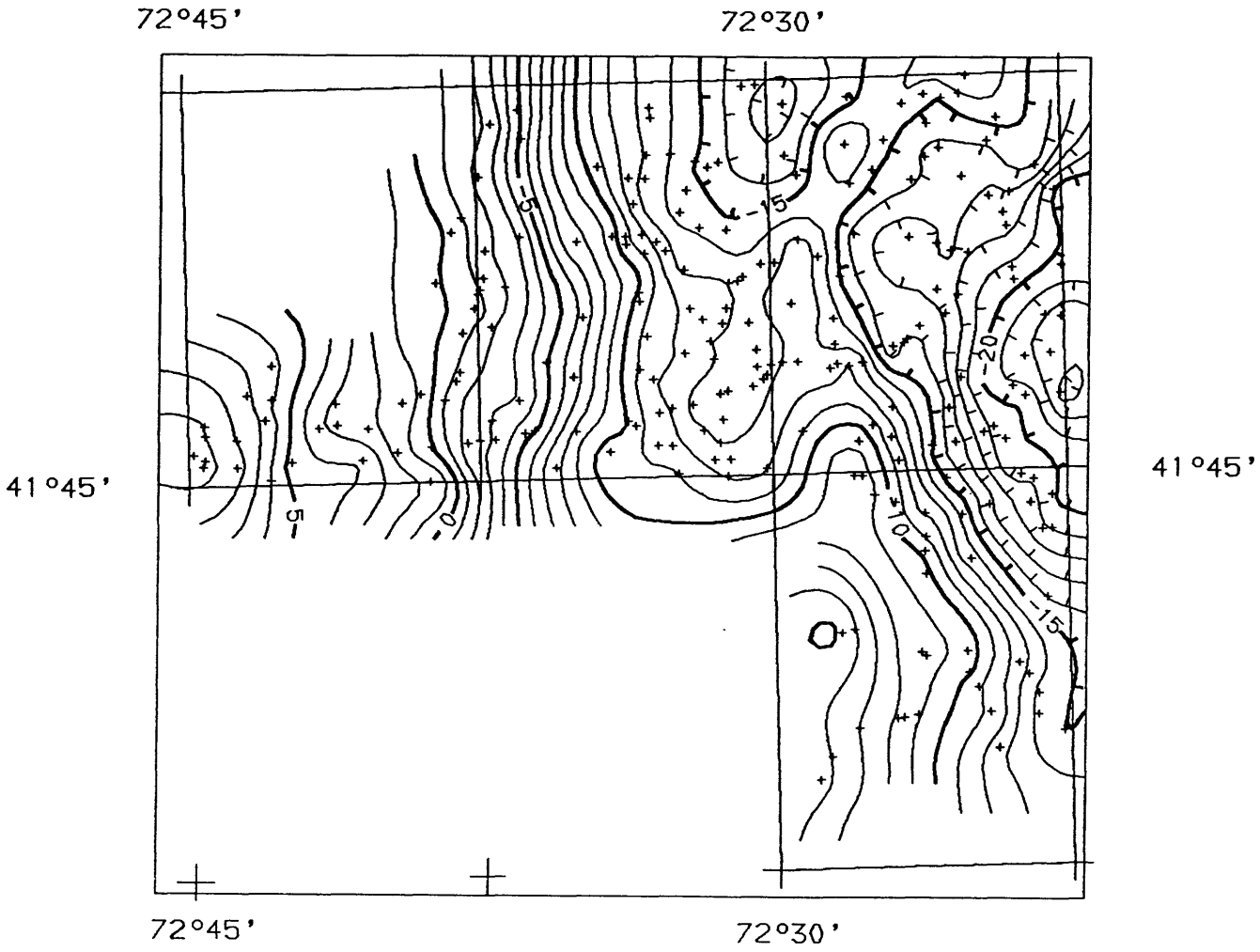

Figure 2 Map showing station locations and contours of the complete Bouguer anomaly

APPENDIX A: BASE STATION

Description of gravity base "BEACH" (figure 1):

The base is located at the University of Connecticut at the town of Storrs, CT at the northern (main) entrance of Beach Hall, on the sidewalk, 2.5 m west of the centerline of the steps.

Latitude: 41° 48.58'N
Longitude: 72° 15.03'W
Elevation: 620 ft
Adopted gravity: 980269.00 milligals

APPENDIX B: PRINCIPAL FACTS OF GRAVITY STATIONS

Explanation of headings:

STATION ID	Gravity station identification number (see list of codes below)
LOCATION:	
LATITUDE	North latitude in degrees, decimal minutes
LONGITUDE	West longitude in degrees, decimal minutes
ELEV	Station elevation in feet
OBSERVED GRAVITY	Observed gravity in milligals
CORRECTIONS:	
TERRAIN	Terrain correction from 0.895 to 166.7 km radius, in milligals
CURV	Curvature correction in milligals
ANOMALIES	
FREE AIR	Free-air anomaly in milligals
COMPLETE BOUGUER	Complete Bouguer anomaly in milligals for density 2.67 gm^3

Quadrangle abbreviations used for STATION ID: (see Fig. 1 for locations)

HAN	Hartford North, CT
MAN	Manchester, CT
MBH	Marlborough, CT
ROC	Rockville, CT

Principal Facts for Gravity Stations in Central Connecticut

STATION ID	LOCATIONS LATITUDE deg min	LOCATIONS LONGITUDE deg min	ELEV (in ft)	OBSERVED GRAVITY (mgals)	CORRECTIONS TERRAIN (dens=2.67)	CORRECTIONS CURV	ANOMALIES FREE AIR	ANOMALIES COMPLETE BOUGUER
HAN01	41 45.78	72 37.50	46.1	980321.60	-0.08	-0.02	-0.83	-2.50
HAN02	41 45.73	72 37.82	43.8	980321.83	-0.09	-0.02	-0.74	-2.35
HAN03	41 45.67	72 38.77	6.0	980326.23	-0.08	0.00	0.19	-0.09
HAN04	41 45.02	72 38.80	3.1	980327.31	-0.08	0.00	1.97	1.79
HAN05	41 45.58	72 39.65	3.1	980327.83	-0.08	0.00	1.66	1.47
HAN06	41 46.52	72 39.52	3.2	980329.36	-0.08	0.00	1.78	1.59
HAN07	41 46.67	72 39.03	3.1	980328.90	-0.08	0.00	1.09	0.91
HAN08	41 46.55	72 38.38	45.0	980323.98	-0.09	-0.02	0.30	-1.35
HAN09	41 46.90	72 38.09	50.6	980324.31	-0.09	-0.02	0.63	-1.21
HAN10	41 47.08	72 38.00	57.2	980324.20	-0.09	-0.03	0.87	-1.20
HAN11	41 47.83	72 37.90	33.0	980327.30	-0.09	-0.01	0.57	-0.66
HAN12	41 48.28	72 37.59	31.7	980328.27	-0.09	-0.01	0.74	-0.44
HAN13	41 48.78	72 38.57	3.2	980331.24	-0.08	0.00	0.28	0.09
HAN14	41 49.75	72 38.16	3.1	980332.58	-0.08	0.00	0.15	-0.03
HAN15	41 50.02	72 37.90	3.0	980331.97	-0.08	0.00	-0.87	-1.06
HAN16	41 45.45	72 40.55	62.0	980326.60	-0.09	-0.03	6.17	3.93
HAN17	41 46.05	72 40.40	61.0	980325.83	-0.09	-0.03	4.40	2.20
HAN18	41 46.53	72 41.20	45.0	980328.17	-0.08	-0.02	4.51	2.88
HAN19	41 46.12	72 41.18	83.0	980324.94	-0.08	-0.04	5.47	2.52
HAN19A	41 46.07	72 41.63	75.0	980325.85	-0.08	-0.03	5.71	3.03
HAN20	41 45.43	72 42.38	67.0	980326.92	-0.08	-0.03	6.98	4.58
HAN21	41 45.10	72 42.92	58.0	980328.29	-0.07	-0.03	8.00	5.92
HAN22	41 46.23	72 43.02	119.0	980327.15	-0.07	-0.05	10.90	6.72
HAN23	41 46.63	72 42.85	148.0	980325.43	-0.05	-0.07	11.31	6.15
HAN24	41 46.70	72 43.50	119.0	980328.35	-0.06	-0.05	11.40	7.23
HAN25	41 45.87	72 43.77	136.0	980326.90	-0.06	-0.06	12.79	8.03
HAN26	41 45.35	72 43.78	125.0	980327.25	-0.06	-0.06	12.89	8.51
HAN28	41 45.37	72 44.65	119.0	980328.44	-0.05	-0.05	13.48	9.32
HAN29	41 45.50	72 44.60	128.7	980328.09	-0.05	-0.06	13.85	9.35
HAN30	41 45.60	72 44.88	138.0	980327.69	-0.04	-0.06	14.17	9.36
HAN31	41 45.95	72 44.58	128.0	980328.41	-0.05	-0.06	13.43	8.95
HAN32	41 46.15	72 44.60	134.0	980328.41	-0.05	-0.06	13.69	9.01
HAN39	41 47.28	72 42.85	110.1	980328.86	-0.07	-0.05	10.21	6.33
MAN01	41 45.12	72 30.17	332.0	980293.70	0.16	-0.14	-0.85	-12.16
MAN02	41 45.00	72 31.15	284.0	980296.44	0.08	-0.12	-2.45	-12.18
MAN03	41 45.32	72 31.08	265.0	980297.82	0.07	-0.12	-3.33	-12.42
MAN04	41 45.30	72 31.48	362.0	980292.17	0.11	-0.16	0.17	-12.23
MAN05	41 45.63	72 31.33	236.0	980299.36	0.05	-0.10	-4.99	-13.09
MAN05A	41 45.87	72 31.74	194.3	980302.40	0.03	-0.09	-6.23	-12.91
MAN06	41 45.05	72 32.41	256.0	980299.35	0.03	-0.11	-2.25	-11.06
MAN07	41 45.58	72 32.55	191.0	980303.45	0.01	-0.08	-5.05	-11.64
MAN08	41 45.60	72 32.93	147.0	980306.29	0.01	-0.06	-6.38	-11.45
MAN09	41 45.98	72 33.45	129.0	980308.63	-0.02	-0.06	-6.31	-10.78
MAN10	41 46.07	72 33.65	134.0	980309.61	-0.03	-0.06	-4.98	-9.64
MAN11	41 46.22	72 32.87	160.0	980306.40	-0.02	-0.07	-5.97	-11.52
MAN12	41 46.30	72 32.55	157.4	980306.09	-0.01	-0.07	-6.65	-12.10
MAN13	41 46.35	72 32.03	178.0	980303.86	0.01	-0.08	-7.02	-13.16
MAN14	41 46.55	72 31.33	271.5	980298.17	0.04	-0.12	-4.22	-13.56
MAN15	41 46.07	72 31.25	226.9	980300.37	0.04	-0.10	-5.49	-13.29
MAN16	41 46.60	72 31.12	276.2	980297.64	0.05	-0.12	-4.38	-13.87
MAN17	41 46.67	72 30.47	304.9	980296.63	0.06	-0.13	-2.79	-13.26
MAN18	41 46.80	72 30.22	327.0	980295.48	0.07	-0.14	-2.06	-13.29
MAN19	41 46.90	72 30.12	317.9	980296.07	0.07	-0.14	-2.47	-13.39
MAN20	41 47.08	72 30.03	318.0	980296.37	0.07	-0.14	-2.43	-13.35
MAN21	41 47.05	72 30.37	298.0	980297.50	0.06	-0.13	-3.14	-13.37
MAN22	41 47.38	72 30.37	286.0	980298.00	0.05	-0.12	-4.26	-14.09
MAN23	41 47.22	72 31.47	222.2	980302.88	0.02	-0.10	-5.15	-12.80
MAN24	41 47.55	72 31.53	178.5	980305.67	0.01	-0.08	-6.96	-13.12

STATION ID	LOCATIONS LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)	OBSERVED GRAVITY (mgals)	CORRECTIONS TERRAIN (dens=2.67)	CURV	ANOMALIES FREE AIR	COMPLETE BOUGUER
MAN25	41 47.33	72 32.20	169.0	980306.97	-0.01	-0.07	-6.23	-12.08
MAN26	41 46.85	72 33.00	151.0	980307.31	-0.03	-0.07	-6.86	-12.11
MAN27	41 47.05	72 33.34	88.0	980312.51	-0.03	-0.04	-7.88	-10.96
MAN28	41 47.67	72 33.15	151.0	980309.13	-0.04	-0.07	-6.27	-11.52
MAN29	41 48.18	72 32.05	181.0	980307.47	-0.02	-0.08	-5.87	-12.14
MAN30	41 47.98	72 31.72	146.0	980309.33	0.00	-0.06	-7.01	-12.05
MAN31	41 47.90	72 31.23	173.6	980306.91	0.01	-0.08	-6.70	-12.69
MAN32	41 48.18	72 31.12	206.5	980305.24	0.01	-0.09	-5.70	-12.82
MAN33	41 48.67	72 31.05	171.0	980307.99	0.01	-0.08	-7.03	-12.92
MAN34	41 48.70	72 30.83	179.0	980307.12	0.02	-0.08	-7.19	-13.35
MAN35	41 48.78	72 30.68	179.9	980306.65	0.03	-0.08	-7.69	-13.88
MAN36	41 49.02	72 30.23	180.0	980307.29	0.05	-0.08	-7.40	-13.57
MAN37	41 47.90	72 30.57	226.0	980302.90	0.04	-0.10	-5.79	-13.56
MAN38	41 49.67	72 31.08	204.0	980305.61	0.00	-0.09	-7.80	-14.85
MAN39	41 48.92	72 32.18	252.0	980303.37	0.01	-0.11	-4.40	-13.10
MAN40	41 49.73	72 31.78	340.0	980298.22	0.08	-0.15	-2.49	-14.15
MAN41	41 50.02	72 32.27	338.0	980298.43	0.10	-0.15	-2.91	-14.48
MAN42	41 49.30	72 32.65	135.0	980311.75	-0.02	-0.06	-7.60	-12.28
MAN43	41 49.48	72 32.87	133.0	980311.96	-0.02	-0.06	-7.84	-12.46
MAN44	41 49.62	72 33.23	110.0	980314.15	-0.03	-0.05	-8.02	-11.85
MAN45	41 49.25	72 33.18	122.0	980313.61	-0.03	-0.05	-6.88	-11.13
MAN46	41 48.52	72 33.33	170.0	980310.76	-0.03	-0.07	-4.12	-10.03
MAN47	41 48.35	72 33.32	149.0	980311.23	-0.04	-0.07	-5.38	-10.57
MAN48	41 48.07	72 34.78	145.0	980315.29	-0.05	-0.06	-1.28	-6.33
MAN49	41 49.43	72 33.63	90.0	980315.97	-0.04	-0.04	-7.80	-10.95
MAN50	41 49.60	72 33.65	77.0	980316.97	-0.04	-0.03	-8.28	-10.98
MAN51	41 49.60	72 33.98	71.0	980318.64	-0.05	-0.03	-7.17	-9.68
MAN52	41 49.52	72 34.90	87.0	980319.72	-0.07	-0.04	-4.47	-7.55
MAN53	41 50.20	72 33.43	122.0	980313.68	-0.04	-0.05	-8.24	-12.49
MAN54	41 50.43	72 32.07	265.0	980303.59	0.00	-0.12	-5.21	-14.37
MAN55	41 50.98	72 31.85	272.0	980303.51	0.00	-0.12	-5.47	-14.86
MAN56	41 50.87	72 31.53	311.0	980300.43	0.02	-0.14	-4.72	-15.44
MAN57	41 50.97	72 31.25	382.0	980295.97	0.09	-0.17	-2.64	-15.75
MAN58	41 52.40	72 30.27	225.0	980306.42	0.00	-0.10	-9.10	-16.88
MAN59	41 52.37	72 30.63	207.0	980307.72	0.00	-0.09	-9.46	-16.61
MAN60	41 52.02	72 32.97	193.0	980311.19	-0.03	-0.08	-6.77	-13.47
MAN61	41 51.82	72 32.97	169.0	980312.44	-0.03	-0.07	-7.48	-13.35
MAN62	41 51.13	72 33.07	192.0	980310.31	-0.02	-0.08	-6.41	-13.07
MAN63	41 51.12	72 32.45	262.0	980305.05	0.01	-0.11	-5.08	-14.12
MAN64	41 50.68	72 33.12	183.0	980309.89	-0.02	-0.08	-7.00	-13.34
MAN65	41 50.70	72 33.52	168.0	980311.58	-0.03	-0.07	-6.76	-12.59
MAN66	41 50.93	72 34.33	88.0	980318.76	-0.06	-0.04	-7.44	-10.54
MAN69	41 51.50	72 36.27	77.0	980325.41	-0.09	-0.03	-2.69	-5.44
MAN70	41 52.03	72 36.34	57.0	980327.78	-0.09	-0.03	-2.99	-5.05
MAN71	41 51.77	72 37.09	0.4	980333.45	-0.07	0.00	-2.26	-2.34
MAN72	41 50.79	72 37.43	3.0	980331.88	-0.08	0.00	-2.12	-2.30
MAN75	41 49.63	72 36.38	68.0	980325.55	-0.08	-0.03	-0.59	-3.02
MAN76	41 49.40	72 37.30	40.0	980327.89	-0.09	-0.02	-0.54	-2.01
MAN77	41 48.87	72 37.33	38.0	980327.61	-0.09	-0.02	-0.21	-1.61
MAN78	41 48.65	72 37.43	36.5	980327.95	-0.09	-0.02	0.32	-1.03
MAN79	41 48.55	72 37.48	37.0	980327.85	-0.09	-0.02	0.42	-0.95
MAN80	41 48.68	72 36.78	68.0	980325.30	-0.08	-0.03	0.58	-1.85
MAN81	41 47.93	72 37.15	55.0	980324.95	-0.09	-0.02	0.13	-1.86
MAN82	41 47.22	72 35.73	116.0	980317.07	-0.06	-0.05	-0.95	-5.02
MAN83	41 46.93	72 35.05	69.8	980317.88	-0.06	-0.03	-4.04	-6.51
MAN86	41 46.52	72 36.45	45.0	980322.33	-0.07	-0.02	1.31	-2.94
MAN87	41 46.15	72 37.16	50.0	980321.21	-0.08	-0.02	-1.41	-3.22
MAN88	41 45.78	72 37.08	49.0	980320.87	-0.08	-0.02	-1.29	-3.07
MAN90	41 45.89	72 36.31	60.1	980318.60	-0.07	-0.03	-2.68	-4.83

STATION ID	LOCATIONS LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)	OBSERVED GRAVITY (mgals)	CORRECTIONS- TERRAIN (dens=2.67)	CURV	ANOMALIES FREE AIR	COMPLETE BOUGUER
MAN91	41 45.93	72 36.04	81.0	980317.40	-0.07	-0.04	-1.97	-4.84
MAN92	41 45.90	72 35.00	116.0	980311.81	-0.05	-0.05	-4.23	-8.28
MAN93	41 45.23	72 35.53	95.0	980312.34	-0.06	-0.04	-4.67	-8.01
MAN94	41 45.50	72 34.15	137.0	980307.51	-0.03	-0.06	-5.96	-10.72
MBH02	41 43.32	72 25.02	557.3	980276.45	0.12	-0.24	5.78	-13.34
MBH04	41 43.85	72 23.18	542.0	980272.86	0.14	-0.23	-0.04	-18.62
MBH05	41 43.87	72 22.92	480.0	980275.72	0.10	-0.21	-3.03	-19.51
MBH06	41 44.50	72 22.90	344.2	980284.04	0.12	-0.15	-8.44	-20.21
MBH07	41 44.35	72 23.45	513.0	980275.63	0.12	-0.22	-0.75	-18.34
MBH08	41 44.80	72 23.38	360.9	980284.65	0.11	-0.16	-6.71	-19.07
MBH09	41 44.90	72 23.68	368.1	980283.47	0.12	-0.16	-7.36	-19.95
MBH10	41 44.33	72 24.52	491.0	980278.85	0.10	-0.21	0.43	-16.42
MBH11	41 44.15	72 25.22	557.0	980276.83	0.12	-0.24	4.89	-14.22
MBH12	41 44.85	72 25.62	575.0	980276.15	0.14	-0.25	4.86	-14.86
MBH14	41 44.20	72 26.18	643.0	980273.52	0.20	-0.27	9.59	-12.41
MBH15	41 43.75	72 26.16	638.2	980274.29	0.19	-0.27	10.59	-11.26
MBH17	41 43.48	72 26.20	651.7	980274.21	0.21	-0.28	12.18	-10.12
MBH19	41 43.05	72 26.17	592.0	980277.40	0.15	-0.25	10.40	-9.89
MBH19	41 43.05	72 26.17	592.0	980277.61	0.15	-0.25	10.61	-9.68
MBH23	41 41.55	72 26.33	617.9	980274.47	0.19	-0.26	12.15	-9.00
MBH24	41 41.48	72 26.20	613.7	980274.93	0.18	-0.26	12.32	-8.69
MBH25	41 41.57	72 25.15	551.0	980278.10	0.12	-0.24	9.46	-9.45
MBH26	41 41.15	72 25.13	632.4	980272.16	0.21	-0.27	11.81	-9.82
MBH26A	41 40.88	72 24.88	657.3	980268.99	0.26	-0.28	11.38	-11.05
MBH27	41 41.10	72 23.58	594.2	980271.14	0.16	-0.25	7.27	-13.09
MBH28	41 41.33	72 23.83	511.0	980277.01	0.12	-0.22	4.97	-12.55
MBH29	41 42.57	72 23.08	623.0	980268.54	0.19	-0.27	5.18	-16.14
MBH30	41 44.42	72 26.90	556.0	980281.12	0.16	-0.24	8.68	-10.36
MBH32	41 44.93	72 27.73	772.0	980270.32	0.44	-0.32	17.43	-8.79
MBH33	41 44.93	72 27.92	723.0	980273.72	0.34	-0.31	16.22	-8.41
MBH34	41 44.57	72 27.42	661.0	980276.61	0.22	-0.28	13.82	-8.79
MBH35	41 40.40	72 24.57	595.0	980271.96	0.18	-0.25	9.21	-11.15
MBH35A	41 40.34	72 23.38	513.4	980273.92	0.10	-0.22	3.59	-14.05
MBH36	41 40.73	72 23.35	552.0	980271.91	0.12	-0.24	4.62	-14.32
MBH38	41 40.04	72 22.70	579.0	980268.52	0.15	-0.25	4.81	-15.04
MBH40	41 39.73	72 24.38	579.0	980270.49	0.18	-0.25	7.24	-12.58
MBH43	41 40.38	72 26.43	530.0	980278.12	0.13	-0.23	9.29	-8.88
MBH43A	41 40.33	72 26.78	474.5	980281.99	0.10	-0.20	8.01	-8.28
MBH44	41 40.15	72 27.92	354.0	980290.00	0.18	-0.15	4.96	-7.09
MBH44A	41 40.32	72 26.93	465.8	980282.66	0.09	-0.20	7.88	-8.12
MBH45	41 39.62	72 28.62	521.0	980280.36	0.14	-0.22	11.82	-6.04
MBH46	41 39.20	72 28.93	432.0	980285.31	0.14	-0.19	9.03	-5.75
MBH49	41 41.97	72 28.32	755.0	980270.87	0.42	-0.32	20.82	-4.83
MBH50	41 42.02	72 28.00	734.0	980271.09	0.38	-0.31	18.98	-5.98
ROC02	41 47.90	72 23.00	734.3	980264.00	0.30	-0.31	3.12	-21.93
ROC03	41 47.88	72 22.58	623.0	980269.83	0.18	-0.27	-1.49	-22.82
ROC04	41 47.17	72 22.87	658.0	980266.86	0.23	-0.28	-0.10	-22.59
ROC05	41 46.42	72 22.63	451.9	980277.70	0.10	-0.19	-7.52	-23.03
ROC06	41 46.37	72 23.53	498.9	980277.67	0.11	-0.21	-3.06	-20.18
ROC07	41 46.57	72 23.85	562.0	980273.63	0.15	-0.24	-1.46	-20.72
ROC08	41 47.12	72 23.52	670.0	980266.70	0.25	-0.28	0.94	-21.95
ROC09	41 48.32	72 25.23	758.0	980266.68	0.33	-0.32	7.40	-18.45
ROC10	41 49.12	72 24.95	724.0	980270.22	0.26	-0.31	6.54	-18.20
ROC10A	41 49.18	72 25.37	676.3	980274.71	0.24	-0.29	6.45	-16.66
ROC11	41 49.88	72 24.02	706.0	980273.30	0.23	-0.30	6.79	-17.36
ROC12	41 49.62	72 23.93	770.5	980268.71	0.30	-0.32	8.65	-17.65
ROC13	41 48.85	72 22.55	749.1	980266.09	0.30	-0.32	5.18	-20.39
ROC14	41 48.82	72 23.80	800.0	980264.10	0.35	-0.34	8.01	-19.26
ROC15	41 48.58	72 23.77	798.0	980263.47	0.35	-0.34	7.56	-19.64

STATION	-----------LOCATIONS-------			OBSERVED	-CORRECTIONS-		---ANOMALIES---	
ID	LATITUDE	LONGITUDE	ELEV	GRAVITY	TERRAIN	CURV	FREE	COMPLETE
	deg min	deg min	(in ft)	(mgals)	(dens=2.67)		AIR	BOUGUER
ROC16	41 47.50	72 26.52	654.6	980273.97	0.23	-0.28	6.20	-16.18
ROC17	41 47.43	72 26.60	627.6	980276.47	0.20	-0.27	6.26	-15.22
ROC18	41 47.37	72 26.87	583.0	980277.09	0.17	-0.25	2.77	-17.20
ROC20	41 47.07	72 27.67	634.0	980278.30	0.26	-0.27	9.23	-12.41
ROC21	41 47.02	72 28.00	534.0	980284.77	0.18	-0.23	6.37	-11.89
ROC22	41 47.05	72 28.30	478.7	980287.34	0.17	-0.21	3.69	-12.67
ROC23	41 46.97	72 28.48	473.0	980287.46	0.16	-0.20	3.39	-12.78
ROC24	41 47.13	72 29.33	391.0	980293.21	0.11	-0.17	1.19	-12.21
ROC25	41 47.12	72 29.73	353.0	980294.49	0.09	-0.15	-1.09	-13.19
ROC25A	41 45.80	72 29.23	446.0	980289.08	0.16	-0.19	4.23	-11.01
ROC26	41 47.43	72 28.35	451.0	980288.81	0.16	-0.19	1.99	-13.43
ROC28	41 46.75	72 25.20	405.5	980285.47	0.21	-0.18	-4.62	-18.41
ROC29	41 45.80	72 24.37	360.0	980285.79	0.17	-0.16	-7.15	-19.41
ROC31	41 45.57	72 24.05	355.0	980285.36	0.15	-0.15	-7.70	-19.81
ROC32	41 45.70	72 24.62	464.0	980280.48	0.12	-0.20	-2.52	-18.43
ROC33	41 46.18	72 25.52	633.0	980272.76	0.21	-0.27	4.93	-16.72
ROC34	41 45.53	72 25.37	678.0	980269.47	0.28	-0.29	6.84	-16.29
ROC35	41 45.47	72 25.95	659.0	980272.10	0.22	-0.28	7.78	-14.76
ROC36	41 45.20	72 26.80	590.0	980279.47	0.16	-0.25	9.06	-11.15
ROC37	41 45.65	72 26.95	602.0	980278.62	0.17	-0.26	8.66	-11.96
ROC38	41 45.58	72 27.78	776.0	980270.64	0.50	-0.33	17.16	-9.13
ROC39	41 45.88	72 27.42	616.0	980279.26	0.20	-0.26	10.28	-10.80
ROC40	41 46.22	72 26.92	709.0	980271.73	0.30	-0.30	10.98	-13.20
ROC43	41 47.75	72 26.20	667.0	980273.42	0.23	-0.28	6.44	-16.36
ROC44	41 47.98	72 25.55	667.0	980273.00	0.22	-0.28	5.67	-17.15
ROC45	41 48.45	72 25.77	665.5	980273.74	0.22	-0.28	5.56	-17.20
ROC47	41 49.32	72 25.73	758.0	980269.43	0.41	-0.32	8.65	-17.12
ROC48	41 49.45	72 26.42	491.0	980285.35	0.20	-0.21	-0.74	-17.50
ROC50	41 49.53	72 27.82	298.0	980298.06	0.14	-0.13	-6.30	-16.45
ROC51	41 48.73	72 28.20	448.0	980289.10	0.13	-0.19	0.05	-15.29
ROC52	41 47.93	72 28.38	447.0	980289.66	0.15	-0.19	1.71	-13.58
ROC53	41 48.25	72 29.48	366.0	980296.65	0.09	-0.16	0.61	-11.94
ROC54	41 49.03	72 29.88	259.0	980302.83	0.04	-0.11	-4.45	-13.36
ROC55	41 49.47	72 29.27	246.5	980305.01	0.06	-0.11	-4.10	-12.55
ROC56	41 49.12	72 28.75	350.0	980297.58	0.08	-0.15	-1.27	-13.28
ROC58	41 50.68	72 29.25	229.1	980304.58	0.04	-0.10	-7.97	-15.85
ROC59	41 51.07	72 29.57	214.0	980305.34	0.04	-0.09	-9.22	-16.57
ROC60	41 52.03	72 29.58	242.0	980304.22	0.01	-0.11	-9.15	-17.50
ROC61	41 52.12	72 27.92	245.6	980306.02	0.14	-0.11	-7.15	-15.50
ROC62	41 51.23	72 28.00	442.0	980295.76	0.12	-0.19	2.40	-12.75
ROC63	41 50.50	72 27.88	408.0	980295.46	0.10	-0.18	-0.01	-14.00
ROC64	41 50.75	72 27.30	482.4	980290.44	0.14	-0.21	1.59	-14.93
ROC65	41 51.30	72 27.02	543.3	980287.82	0.19	-0.23	3.88	-14.69
ROC66	41 51.97	72 26.53	474.0	980293.65	0.14	-0.20	2.19	-14.04
ROC67	41 52.13	72 26.00	514.5	980291.34	0.15	-0.22	3.44	-14.18
ROC68	41 51.58	72 25.95	528.0	980288.18	0.16	-0.23	2.38	-15.69
ROC69	41 52.05	72 25.55	553.9	980287.89	0.17	-0.24	3.82	-15.14
ROC70	41 52.13	72 25.10	599.0	980286.44	0.19	-0.26	6.49	-14.01
ROC71	41 52.47	72 24.93	599.0	980288.01	0.20	-0.26	7.55	-12.93
ROC73	41 51.67	72 24.15	872.0	980268.69	0.53	-0.36	15.11	-14.47
ROC74	41 51.23	72 24.40	772.1	980272.76	0.33	-0.32	10.44	-15.89
ROC75	41 51.12	72 25.63	555.4	980285.45	0.19	-0.24	2.92	-16.07
ROC76	41 50.95	72 25.98	499.0	980288.47	0.18	-0.21	0.89	-16.16
ROC77	41 50.53	72 26.33	435.0	980292.10	0.19	-0.19	-0.87	-15.71
ROC78	41 50.57	72 25.07	796.5	980269.86	0.43	-0.33	10.83	-16.24
ROC79	41 50.20	72 24.37	705.5	980273.70	0.23	-0.30	6.67	-17.47
ROC80	41 50.25	72 23.85	678.0	980276.07	0.21	-0.29	6.37	-16.83
ROC81	41 50.75	72 23.18	589.0	980283.24	0.18	-0.25	4.42	-15.74
ROC82	41 50.27	72 22.70	713.0	980270.37	0.24	-0.30	3.93	-20.45