Geophysics Open-File Report 2
Geoscience Department
New Mexico Tech
Socorro, NM 87801

Independent Study

NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY

A GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, RIO GRANDE RIFT ZONE, NEW MEXICO

BY

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Submitted in Partial Fulfillment of the requirements
for the Degree of Master of Science (Geophysics)

NMIMT

SOCORRO, NEW MEXICO

MAY, 1972

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ACKNOWLEDGEMENT

I am deeply grateful to Dr. Allan R. Sanford of the New Mexico Institute of Mining and Technology for his invaluable advice and suggestion in the field work and in the completion of this report.

I am also indepted to Mr. Thomas E. Elliott for his assistance in the field.

ABSTRACT

A gravity survey covering part of the Rio Grande depression in northern Socorro County, New Mexico, was described. The Bouguer gravity anomaly map was presented. The qualitative interpretation was made, and the main result was that the Rio Grande valley was a series of linked structure depressions.which was asymmetrical in cross section. The quantitative interpretation was also made by using the computer, and the thickness of the Rio Grande was estimated.

INTRODUCTION

A gravity survey involving 30 observed stations was made, in order to study the structure of Rio Grande rift zone, between latitude 34° 07′ 30″ N. to 34° 15′ 00″ N, and longitude 106° 45′ 00″ W. to 107° 00′ 00″ W. This area is the northern end of Socorro basin, near San Acacia. The Joyita uplift is located on the east and the Socorro uplift is located on the west. Quadrangles covered by the gravity data were Lemitar and Meso Del Yeso.

The Bouguer gravity anomaly map included about 100 of observed gravity data, which had taken from Dr. Sanford's previous work.

This paper described the survey and all corrections procedures, and also presented a structural interpretation of the result. The computational gravities were carried out by using the computer program of Ernst W. Heckart (1968), and by following the description of Kraiwut Wongwiwat (1970). The computed data and the computed gravity anomaly profiles were presented.

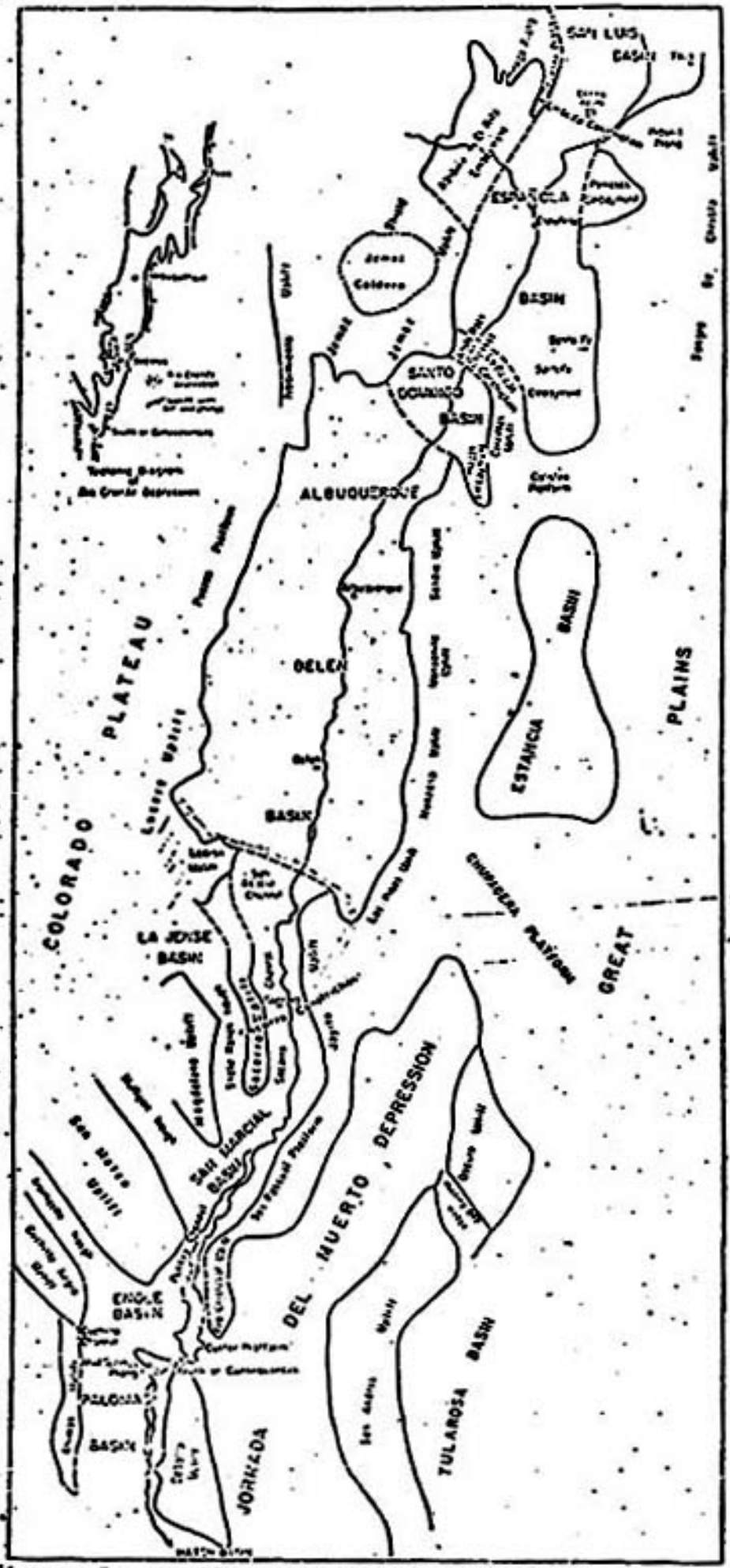

Figure 1. MAP OF A PART OF THE RIO GRANDE DEPRESSION SHOWING MAJOR TECTONIC FEATURES (From Kelley, 1952)

GEOLOGY AND TECTONICS

The Rio Grande depression, which extends through the length of northern and central of New Mexico, is a series of structural basins underlain by Tertiary rocks and bordered in most places by highlands composed of pre-Tertiary rocks. The Albuquerque-Belen basin is from 25 to 35 miles wide and about 80 miles long, and extends from the Jemez Mountains southward to San Acacia. To the south of San Acacia is the Socorro basin, which includes the Socorro valley and surrounding plains(Denny, 1940, p. 73).

The Socorro constriction extends about 40 miles from the San Acacia on the north to the San Marcial basin on the south. The Rio Grande depression along this constriction is only 5 to 10 miles wide. The Socorro constriction, which is the main linkage of the Albuquerque basin with the San Marcial basin, lies between the Joyita uplift on the east and the Socorro uplift on the west (Kelley,1952, p.97).

The valley and basin of Socorro County are largely floored with Quaternary detrital deposits. Tertiary sedimentary rocks occupy fairly large areas on both sides of the Rio Grande. East of the Rio Grande the older rocks are largely sedimentary and of

Pennsylvanian, Permain, Triassic and Cretaceous ages. West of the Rio Grande, Tertiary volcanic rocks are predominant. Pre-Tertiary sedimentary rocks are important in the northwest corner of the county (Lasky, 1932, p. 17).

The Joyita uplift is composed of pre-Tertiary rocks. To the east Tertiary volcanic rocks are downfaulted against the pre-Tertiary rocks of the hills. To the west these rocks are overlain unconformably by the Tertiary volcanics and the Santa Fe formation. Locally the unconformity is broken by faults (Denny, 1940, p. 101).

The Socorro uplift is a low southward structural extension of a part of the Ladron uplift, and bounds the La Jense-Snake Hills basins on the east. Deposits of Santa Fe type occur in the La Jense-Snake Hills basins. Post-Santa Fe faulting along the eastern base of the Socorro uplift appears to have completed the east and west grabens (Kelley, 1952, p.97-98).

GRAVITY SURVEY PROCEDURE

The standard model of Worden gravity meter serial no. 110, which is the property New Mexico Tech, was used in this gravity survey. This gravity meter measures only vertical component of gravity, and it has the range of 1000 scale divisions. The scale constant of this gravity meter is 0.9395 milligal/scale division, which gives a sensitivity of about 0.1 milligal.

The master base station for this gravity survey was located at opposite Room 24 the outside sidewalk on the north side of the Research and Development Building, now Workman Center, of New Mexico Institute of Mining and Technology. The absolute gravity value at this master base station is 979185.34 milligals, and the elevation is 4636.7 feet (Sanford,1968, p. 1). This absolute gravity value was correlated to the observed gravity values in the field.

Two new base stations were transfered into the survey area at the station K1 and K25, which have the absolute gravity values of 979189.004 and 979200.653 milligals respectively (see Appendix A and B.). This two values were obtained by making more than two consecutive runs between the master base station and the K1, K25 gravity base stations in the survey area.

The tidal effects and the instrument error were corrected

by the drift corrections. The gravity meter was repeated for the readings at the same base station within every two hours. The difference of the two readings, at the same base station, was plotted with the reading time by setting one of the difference at zero. A straight line was drawn and the value of the drift corrections were determined at each station from this straight line (see figure 24 and figure 25).

The gravimeter reading values, after had been already corrected the drift corrections, were the observed gravity values.

CALCULATION OF BOUGUER ANOMALIES

A. Datum

All computations of gravity values were made with respect to mean sea level.

B. Elevation Correction:

A combined of Free-air and Bouguer plate corrections was used for elevation corrections.

Free-air correction is:

$$\Delta g_{fa} = 0.09406 \text{ milligal/feet } h \text{ (feet)},$$

and Bouguer plate correction is:

$$\Delta g_{bp} = -0.01276\rho \text{ milligal/feet } h \text{ (feet)}.$$

In this gravity survey, the density ρ adopted for the plate correction was 2.667 grams/cm^3 (Sanford, 1968, p. 1). Therefore,

$$\Delta g_{bp} = -0.03408 \text{ milligal/feet } h \text{ (feet)}.$$

Then,

$$\Delta g_{fa} + \Delta g_{bp} = 0.09406 - 0.03408 \text{ milligal/feet } h\text{(feet)}$$

$$= 0.05998 \text{ milligal/feet } h\text{(feet)}.$$

Therefore, in this gravity survey the elevation correction was 0.05998 milligal feet multiplied the elevation of each station in feet.

C. Terrain Correction

There was no terrain correction in this gravity survey,

because the survey area is very small relief topography. The maximum elevation of the gravity station is 5216 feet from mean sea level and the minimum is 4651 feet.

D. Theoretical Gravity

The gradient of the theoretical gravity was used for the calculation of theoretical value of gravity at each station. The reference latitudes were used in this method and the interval of the reference latitudes was 2 minutes and 30 seconds.

The theoretical values of gravity at the reference latitudes and their gradients were calculated by using the International Gravity Formula (see Appendix C). The distances of the gravity stations north or south of the nearest reference latitude were measured and multiplied by the gradient of gravity at that latitude. The minus signs were used for the distances of the stations which were south of the reference latitude, and the positive signs for those which were north of the reference latitude. The latter values were added to the gravity values at the reference latitude to obtain theoretical gravity at the individual station.

Therefore the theoretical gravity at each station is:

$$g_{th} = g_{th}(\text{ref. lat.}) + \text{distance} \times \frac{d\, g_{th}}{d\, s}(\text{ ref. lat. }).$$

B. Anomaly

The gravity obtained after adding the elevation and terrain corrections and subtracting the theoretical gravity is called the Bouguer anomaly.(see table 1).

Bouguer anomaly = observed gravity value + elevation correction + terrain correction - theoretical gravity value.

The gravity contour map from Bouguer anomalies is called Bouguer gravity map.

Station	Time	A Reading	B Drift corr.	C A + B	D C X 0.09395	E Base station value 979,-
BS K1	12:16	474.8	0	474.8	446.075	189.004
K9	13:04	471.7	- 0.2	471.5	442.974	
K8	13:27	472.9	- 0.3	472.6	444.008	
BS K1	13:50	475.2	- 0.4	474.8		
BS K1	13:50	475.2	0	475.2	446.450	189.004
K17	14:10	479.1	0	479.1	450.114	
K18	14:34	480.6	- 0.1	480.5	451.430	
K19	14:52	483.7	- 0.1	483.6	454.342	
K20	15:03	485.2	- 0.1	485.1	455.751	
BS K1	15:40	475.4	- 0.2	475.2		
BS K25	12:10	504.3	0	504.3	473.790	200.653
K21	12:21	507.1	0	507.1	476.420	
K22	12:30	505.4	- 0.1	505.3	474.729	
K23	12:40	509.2	- 0.1	509.1	478.299	
K24	12:56	500.7	- 0.2	500.5	470.220	
K26	13:18	504.5	- 0.2	504.3	473.790	
BS K25	13:35	504.6	- 0.3	504.3		
BS K25	13:35	504.6	0	504.6	474.072	200.653
K27	13:58	501.5	- 0.1	501.4	471.065	
K29	14:14	501.7	- 0.2	501.5	471.159	
K30	14:26	495.6	- 0.3	495.3	465.334	
K28	14:44	499.6	- 0.4	499.2	468.998	
BS K25	15:13	505.1	- 0.5	504.6		

TABLE 1 BOUGUER ANOMALIES

F – D '8,–	G Observed val. = F + D 979,–	H Reference latitude	I Dist. N or S Of ref. lat. in feet	J I X $\frac{d}{d}\frac{g}{s}$th(re lat
1.527	189.004	34° 10′ 00″ N	+ 7550	+ 1.726
	190.320	34° 10′ 00″ N	+ 9500	+ 2.172
	186.656	34° 12′ 30″ N	– 350	– 0.080
	183.837	34° 12′ 30″ N	– 920	– 0.210
	186.092	34° 12′ 30″ N	+ 3500	+ 0.801
	185.434	34° 12′ 30″ N	+ 1590	+ 0.364
	182.240	34° 12′ 30″ N	+ 8700	+ 1.990
4.433	189.004			
	181.394	34° 10′ 00″ N	+ 8210	+ 1.877
	179.046	34° 10′ 00″ N	+ 5310	+ 1.214
	179.609	34° 10′ 00″ N	+ 2230	+ 0.510
3.023	189.004			
	185.340	34° 07′ 30″ N	+ 6800	+ 1.554
	181.957	34° 07′ 30″ N	+ 12020	+ 2.746
	183.930	34° 10′ 00″ N	+ 870	+ 0.199
	180.360	34° 10′ 00″ N	+ 2220	+ 0.508

L		M	N	P	R
g_{th} of lat. 979,-	ref.	g_{th} = L + J 979,-	Elevation feet	Elevation corr. N X 0.05998	$g_{bouguer}$ = G + P - M
675.357		677.083	5053	303.079	- 185.000
675.357		677.529	5038	302.179	- 185.030
678.839		678.759	5107	306.318	- 185.785
678.839		678.629	5164	309.737	- 185.055
678.839		679.640	5138	308.177	- 185.371
678.839		679.203	5160	309.497	- 184.272
678.839		680.829	5216	312.856	- 185.733
675.357		677.234	5186	311.056	- 184.784
675.357		676.571	5214	312.736	- 184.789
675.357		675.867	5200	311.896	- 184.362
671.879		673.433	5061	303.559	- 184.534
671.879		674.625	5147	308.717	- 183.951
675.357		675.556	5124	307.338	- 184.288
675.357		675.865	5184	310.936	- 184.569

		A	B	C	D	E
Station	Time	Reading	Drift corr.	A + B	C X 0.09395	Base station value 979,-
BS K1	12:07	473.1	0	473.1	444.477	189.004
K2	12:15	474.5	0	474.5	445.793	
K3	12:38	470.6	0	470.6	442.129	
K4	12:50	467.6	0	467.6	439.310	
K5	13:10	470.0	0	470.0	441.565	
K6	13:19	469.4	- 0.1	469.3	440.907	
K7	13:36	466.0	- 0.1	465.9	437.713	
BS K1	14:24	473.2	- 0.1	473.1		
BS K1	14:24	473.2	0	473.2	444.571	189.004
K10	15:08	465.1	0	465.1	436.961	
K11	15:27	462.5	+ 0.1	462.6	434.613	
K12	15:48	463.1	+ 0.1	463.2	435.176	
BS K1	16:15	473.1	+ 0.1	473.2		
BS K1	9:53	474.7	0	474.7	445.981	189.004
K13	10:24	470.8	0	470.8	442.317	
K14	10:55	467.3	- 0.1	467.2	438.934	
K15	11:13	469.4	- 0.1	469.3	440.907	
K16	11:27	465.7	- 0.2	465.5	437.337	
BS K1	11:49	474.9	- 0.2	474.7		

TABLE 1 (continued)

F F - D 978,-	G Observed val. = F + D 979,-	H Reference latitude	I Dist. N or S of ref. lat. in feet	J I X $\frac{d-g}{d\ s}$th(ref.- lat.)
12.929	189.004			
	185.903	34° 12' 30" N	+ 2000	+ 0.458
	186.937	34° 12' 30" N	- 1430	- 0.327
12.554	189.004			
	192.668	34° 12' 30" N	- 2350	- 0.538
	193.984	34° 12' 30" N	- 780	- 0.178
	196.896	34° 12' 30" N	- 510	- 0.117
	198.305	34° 12' 30" N	- 1120	- 0.256
16.863	200.653	34° 12' 30" N	+ 6110	+ 1.398
	203.283	34° 12' 30" N	+ 3340	+ 0.764
	201.592	34° 12' 30" N	+ 3860	+ 0.883
	205.162	34° 12' 30" N	+ 7830	+ 1.791
	197.083	34° 12' 30" N	- 1080	- 0.247
	200.653	34° 12' 30" N	+ 7100	+ 1.624
16.581	200.653			
	197.646	34° 12' 30" N	+ 8200	+ 1.876
	197.740	34° 15' 00" N	- 4340	- 0.993
	191.915	34° 15' 00" N	- 2060	- 0.471
	195.579	34° 12' 30" N	+ 8220	+ 1.880

L	M	N	P	R
g_{th} of ref. lat. 979,-	g_{th} = L + J 979,-	Elevation feet	Elevation corr. N X 0.05998	$g_{bouguer}$ G + P - M
678.839	679.297	5116	306.858	- 186.536
678.839	678.512	5103	306.078	- 185.497
678.839	678.301	4998	299.780	- 185.853
678.839	678.661	4931	295.761	- 188.916
678.839	678.722	4870	292.103	- 189.723
678.839	678.583	4802	288.024	- 192.238
678.839	680.237	4782	286.824	- 192.760
678.839	679.603	4651	278.967	- 197.369
678.839	679.722	4692	281.426	- 196.704
678.839	680.630	4662	279.627	- 195.841
678.839	678.592	4735	284.005	- 197.504
678.839	680.463	4861	291.563	- 188.247
678.839	680.715	5020	301.100	- 181.969
682.324	681.331	5083	304.878	- 178.713
682.324	681.853	5157	309.317	- 180.621
678.839	680.719	5074	304.339	- 180.801

INTERPRETATION

A. Qualitative Interpretation

In this gravity survey the Bouguer anomalies are all negatives (as shown in table 1), because the elevation of this area is above mean sea level. From the Bouguer gravity anomaly map, figure 2, showed that as the average elevation decrease, as it does toward the Rio Grande basin, the Bouguer anomalies became more negative. By using the concept of isostasy, Heiskanen and Vening Meinesz (1958, p. 147) explained that at mean sea level the Bouguer anomalies are near zero, on the mountain area above mean sea level the Bouguer anomalies are negative, and in the low level land area below mean sea level the Bouguer anomalies are positive.

A major characteristic of this Bouguer gravity map was the existance of elongate gravity low extended north-south through the Lemitar quadrangle, which implied that the structure was of a series linked structural depression. The maximum and minimum negative anomalies along the depression were closely related to the topography and structure. The Bouguer anomalies had the maximum negative values in the southern part of the Lemitar quadrangle, where the valley was relatively broad.

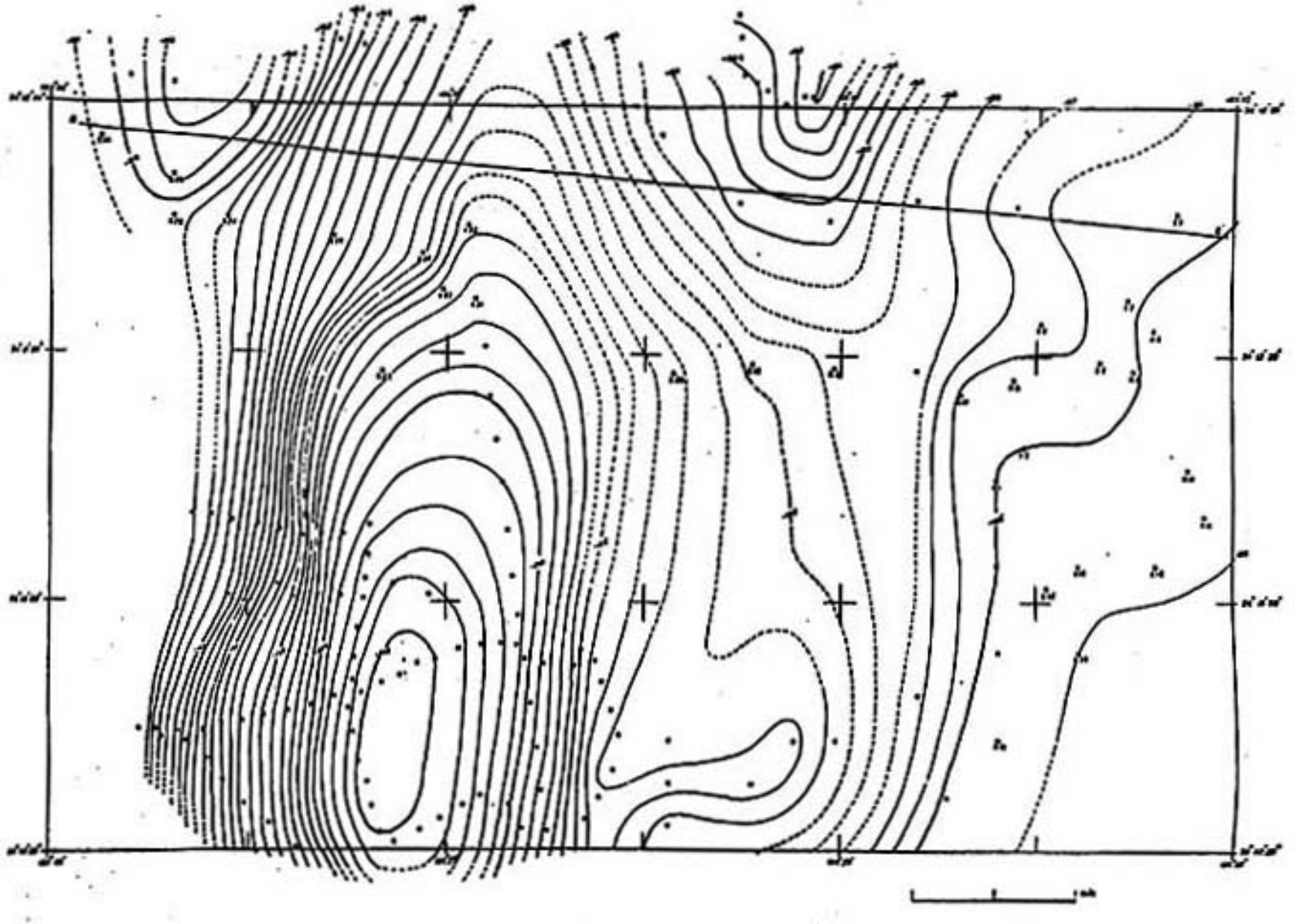

Figure 2. Bouguer Anomaly map for the Lemitar and Meso Del Yeso quadrangles.

The spacing of gravity contours described the shape of the Rio Grande depression. The closing space of Bouguer gravity contour, as along the western margin of the Lemitar valley, was defined by a narrow fault zone with large displacement. The relative wide contour spacing between the maximum negative gravity anomalies and the eastern boundary of Lemitar valley probably showed step faulting (Sanford, 1968, p.3).

From Bouguer anomaly map indicated that the Rio Grande depression in the Lemitar quadrangle is asymmetrical. The gravity anomalies were down dropped more rapidly along the western margin than the eastern margin.

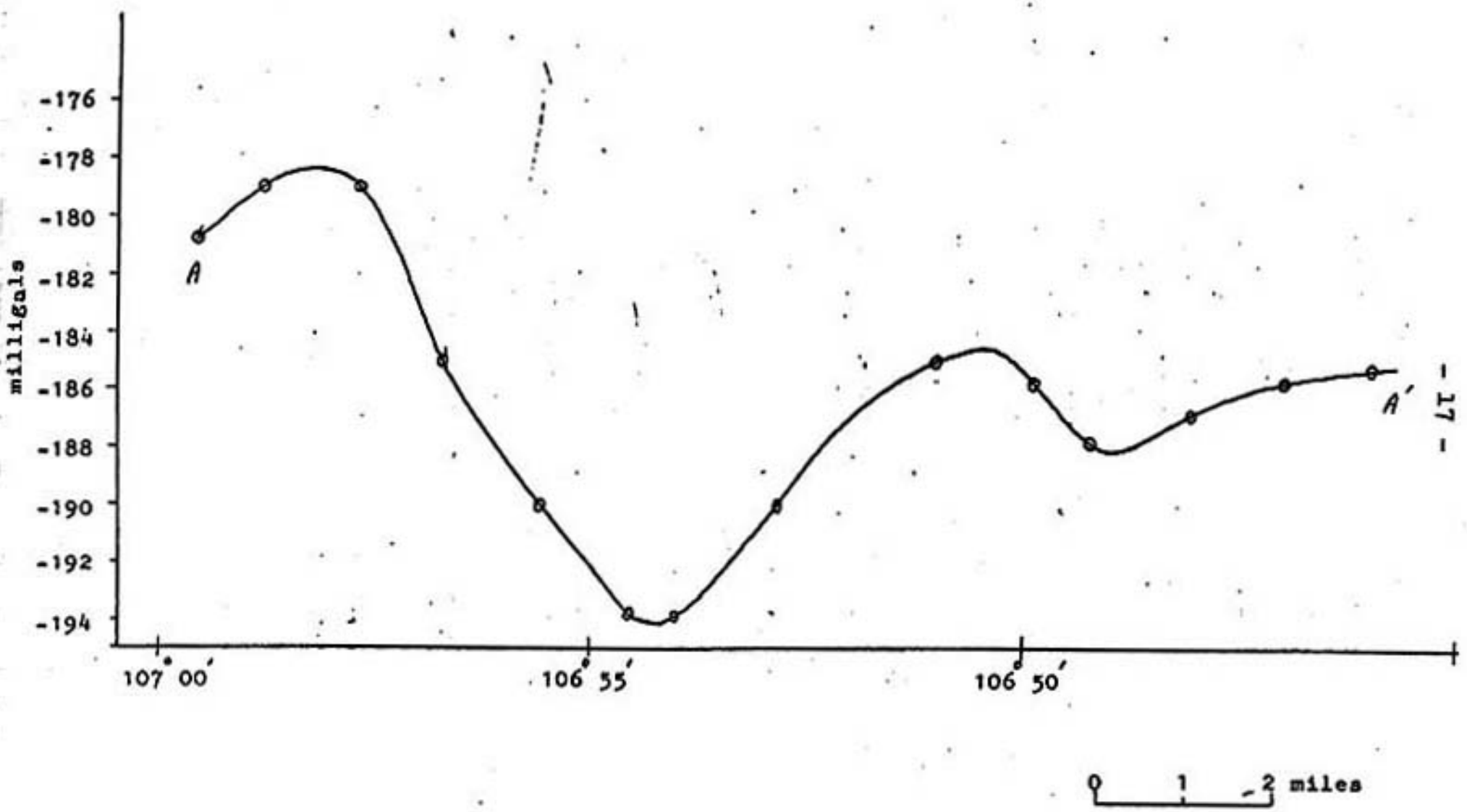

Figure 3. Bouguer gravity anomalies along profile AA'.

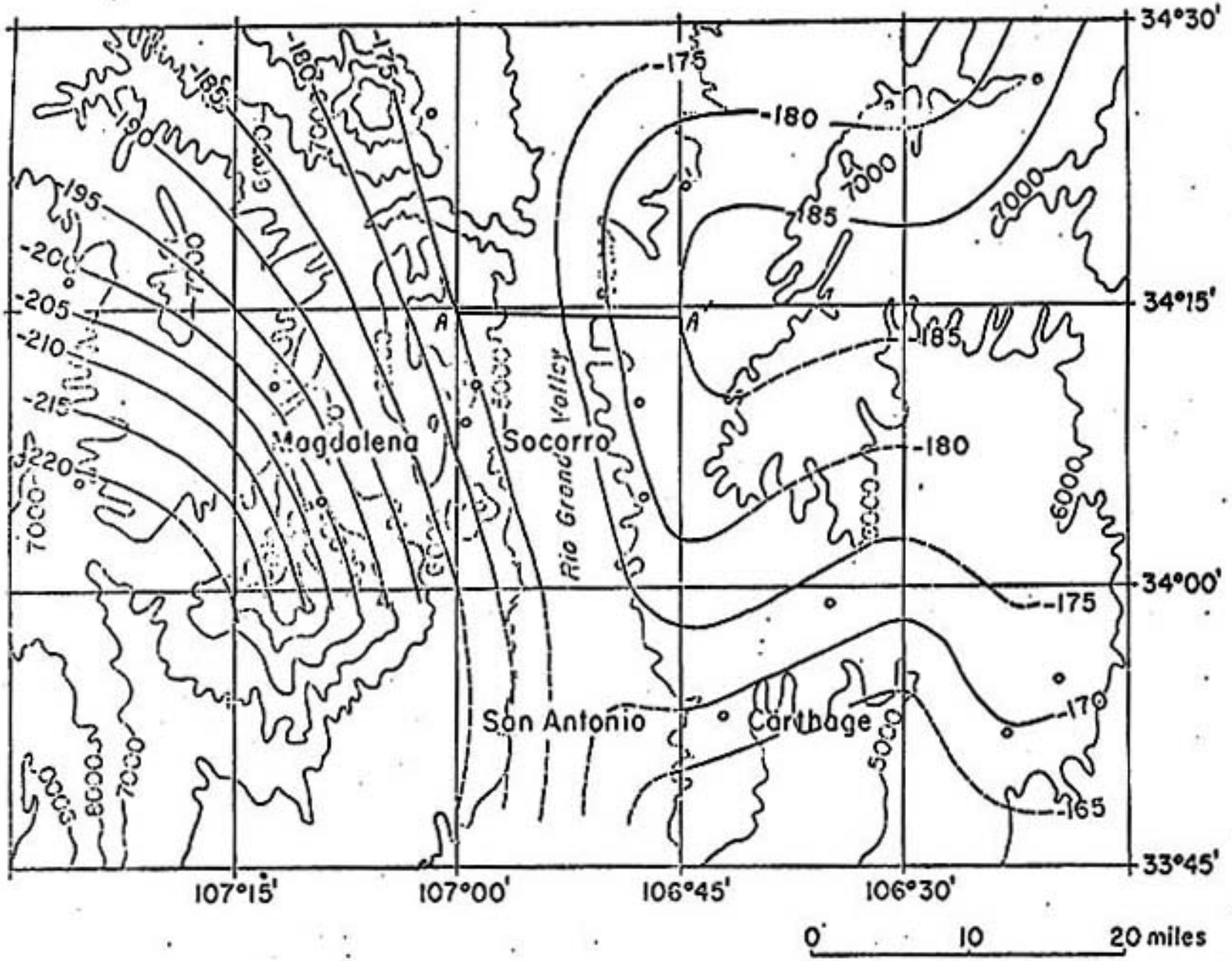

Figure 4. Regional Bouguer anomalies map.

(From Sanford, 1968)

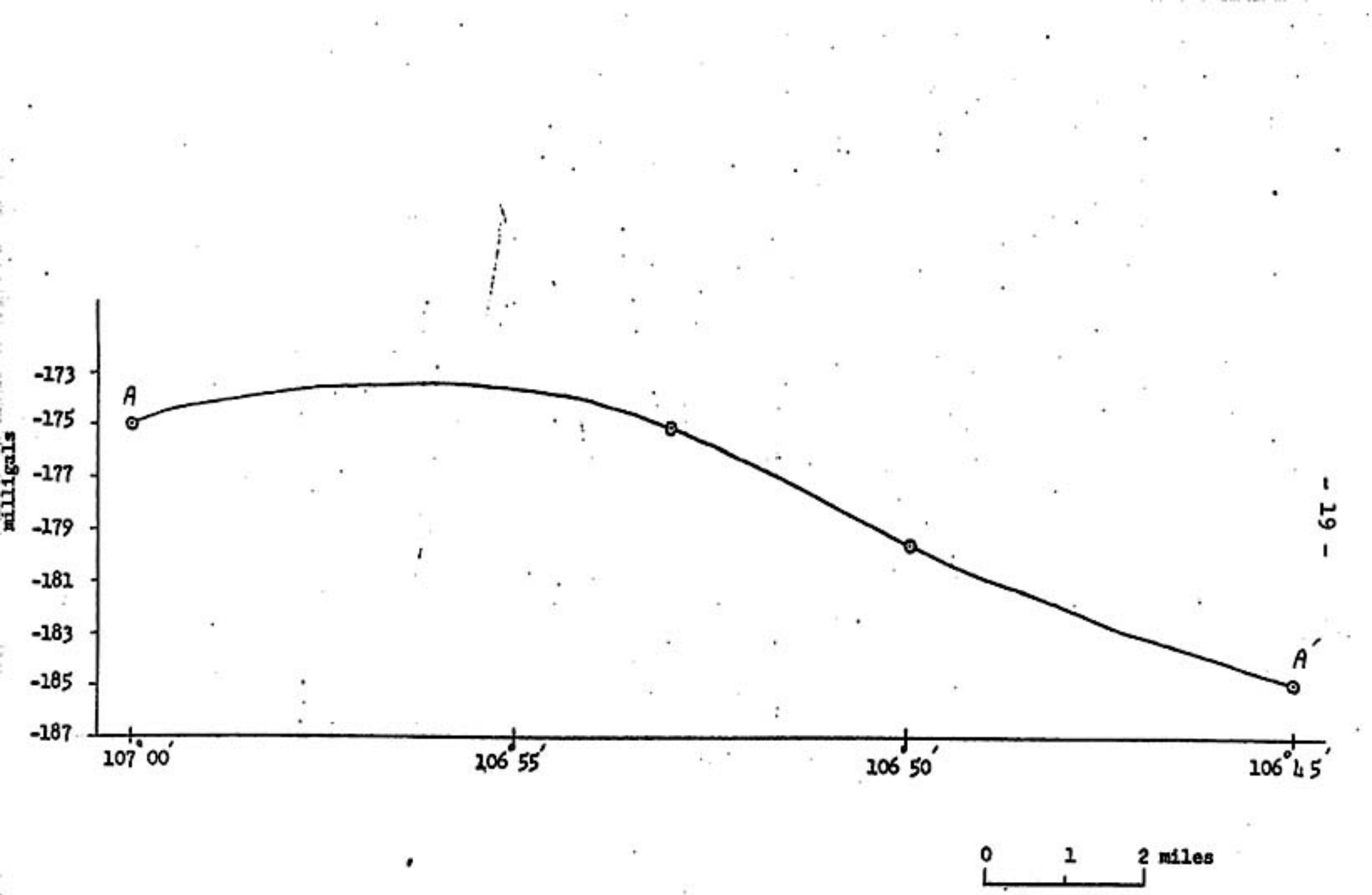

Figure 5. Regional gravity correction along profile AA´.

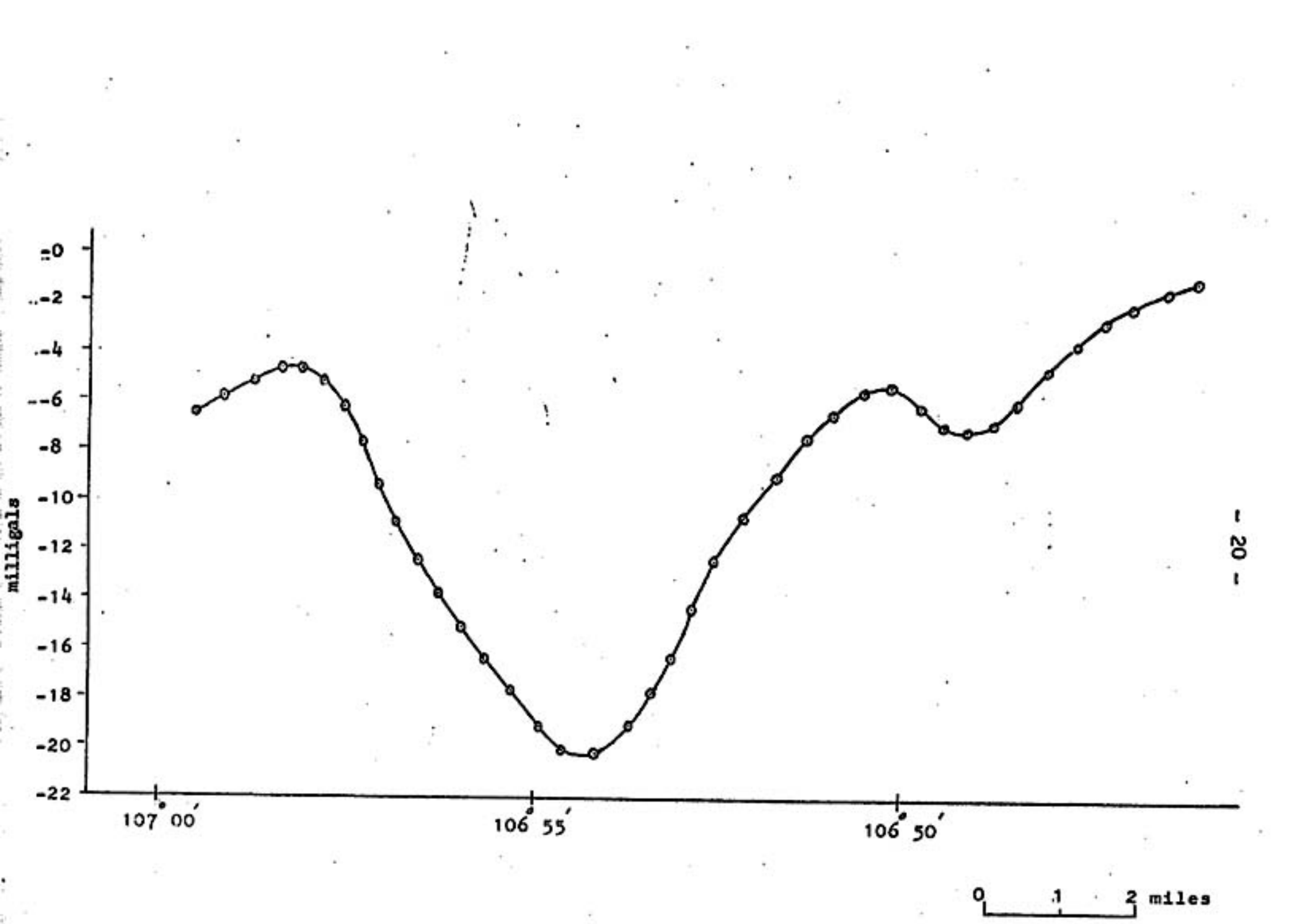

Figure 6. Residual gravity anomalies along profile AA′.

B. Quantitative Interpretation

In this in terpretation the gravity variations arising from near surface geologic factors were of principal concerned. The regional correction was made to remove the effects of crustal and subcrustal structure on the gravity profile.

Estimated of thickness of the subsurface layers were obtained along the Bouguer gravity profile AA', figure 3. The regional Bouguer gravity anomaly map, as shown in figure 4, from Sanford (1968) was used in order to obtain the regional correction profile, figure 5. The residual gravity profile, as shown in figure 6, which was used in this interpretation, was obtained by subtracting the regional correction profile from the Bouguer gravity profile.

The geologic section from Sanford (1968), figure 7, was used to calculate the depth to Precambrain basement along the profile. This geologic section, from base of Santa Fe formation to Precambrain was devided into 9 sections. Bach section had the thickness of 1000 feet with average density.

This interpretation, of the gravity profile, was made under the following assumptions:

1. All structural in this survey area was known and con-

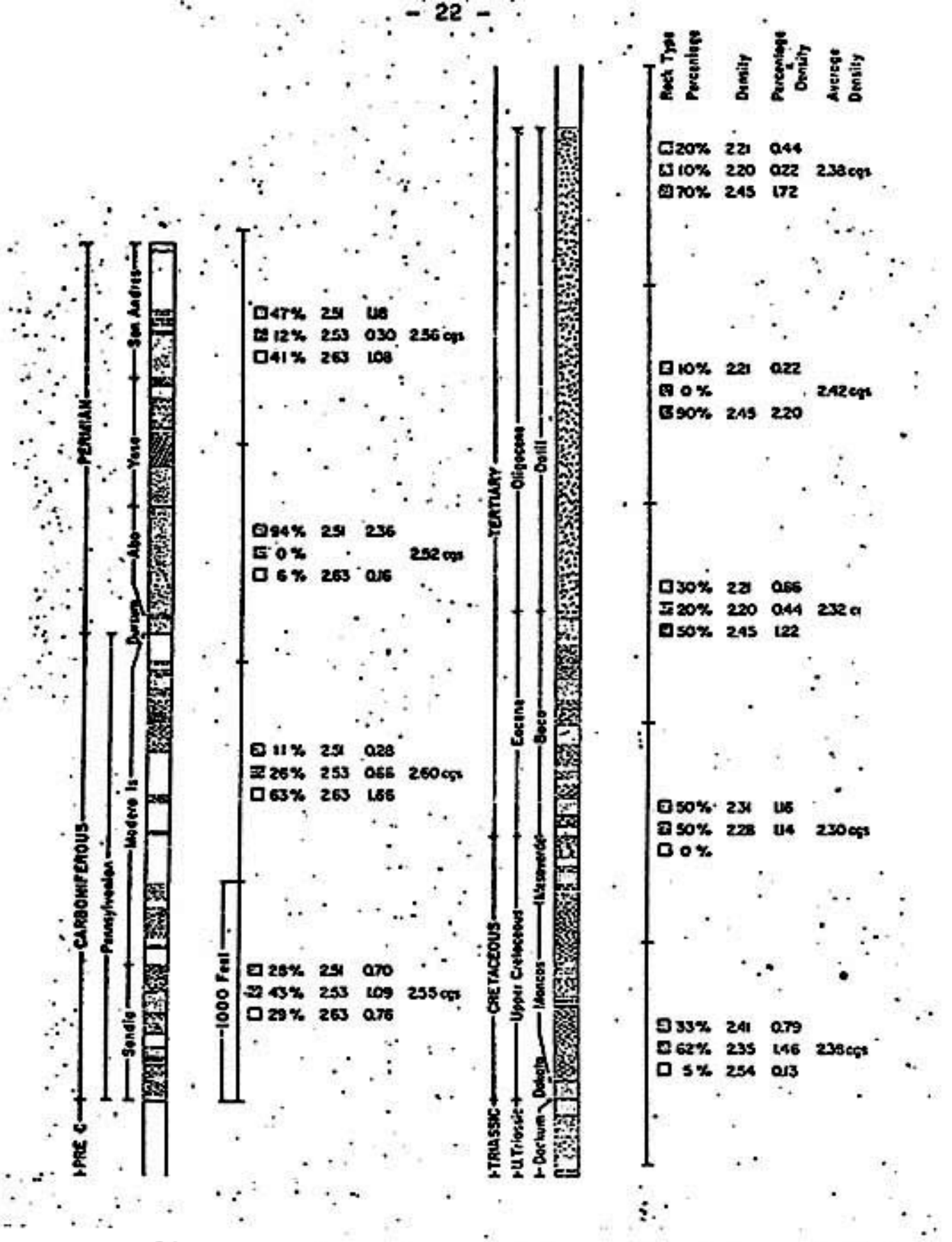

Figure 7. Geologic section used in gravity interpretation.

(From Sanford, 1968)

tained the geologic section as shown in figure 7.

2. All rock units were assumed to be horizontal.

3. All structural models for computation were assumed to be two dimensional.

The computer program of Ernst W. Heckart (1968) was.used for the interpretation, and the data were assumed by following the description of Kraiwut Wongwiwat (1970). The observed and computed gravity profiles were plotted.

The structural models in this computation were constructed by comparing to the geologic map of that area. The thickness of the first layer, at the surface, could be varied and only the Santa Fe formation could have the thickness more than 1000 feet. From the second layer to Precambrain the thickness of each layer was constant 1000 feet.

To construct the structural models in this interpretation, at the begining the geologic structure, along profile AA', in the region between longitude 107° 05' W. to longitude 107° 00' W. was considered as no faulting, and it composed of the same Santa Fe formation. This first assuming would help very much in constructing the models. It was much difficult in constructing the structural models, at the begining, with faulting in that region.

The various data of the structural model were assumed into the computer program to get the computed gravity profiles. Numbers of data were estimated, as shown from table 2 to table 14, until the two curves of computed and observed gravity were matched, see figure 8 to figure 21. The curves in figure 20 and 21, from data table 14, were the best matched curve.

Now the fault in the region between longitude 107° 05′ W. to longitude 107° 00′ W. was considered, and this was the final step. The structural model and the gravity curves in figure 22 and figure 23 from data table 16 were the final result.

The comparison between observed and computed anomalies in figure 23 appeared good. The magnitudes between maximum and minimum gravity anomalies of both observed and computed profiles were the same. The position of maximum and minimum of the computed profile agreed with the observed profile. However, the computed gravity anomalies were not the same number as the observed anomalies, this might be because of the the reference datum of both computed and observed gravity anomalies were not the same level.

From figure 22, the subsurface structure along profile AA′ was known. The Santa Fe formation layer of the Rio Grande depression was about 1500 feet thick.

CONCLUSION

The Worden gravity meter, which has the scale constant of 0.9395 milligal/scale division, was used in this gravity survey. The Bouguer gravity anomaly map showed Rio Grande depression in Lemitar quadrangle. The subsurface geologic structure along the profile AA' was found by using the two-dimensional computer program. The computed gravity curve and the observed gravity curve were good matched, and both of them had the same magnitude. From computed gravity anomalies the thickness of Rio Grande depression, from the surface of Santa Fe formation to Precambrain, is about 10500 feet.

APPENDIX A

THE ABSOLUTE GRAVITY VALUE OF BASE STATION K1

		A	B	C
Station	Time	Reading	Drift corr.	A + B
MBS	8.55	468.7	0	468.7
BS K1	9.42	472.8	- 0.2	472.6
MBS	10.28	469.1	- 0.4	468.7
BS K1	11.28	473.2	- 0.4	472.8
BS K1	12.07	473.1	- 0.5	472.6
BS K1	14.24	473.2	- 0.5	472.7
BS K1	16.15	473.1	- 0.6	472.5
MBS	16.58	469.3	- 0.6	468.7

The average of base station K1 (BS K1) reading value is,

$$= \frac{472.6 + 472.8 + 472.6 + 472.7 + 472.5}{5} \text{ scales,}$$

$$= 472.6 \text{ scales.}$$

The difference of reading value between the master base station (MBS) and the base station K1 is,

$$= 472.6 - 468.7 = 3.9 \text{ scales,}$$

$$= 3.9 \times 0.9395 \text{ milligals,}$$

$$= 3.66405 \text{ milligals.}$$

The absolute gravity at BS K1 = 3.664 + absolute gravity at MBS ,

$$= 3.664 + 979185.34 \text{ milligals,}$$

$$= 979189.004 \text{ milligals.}$$

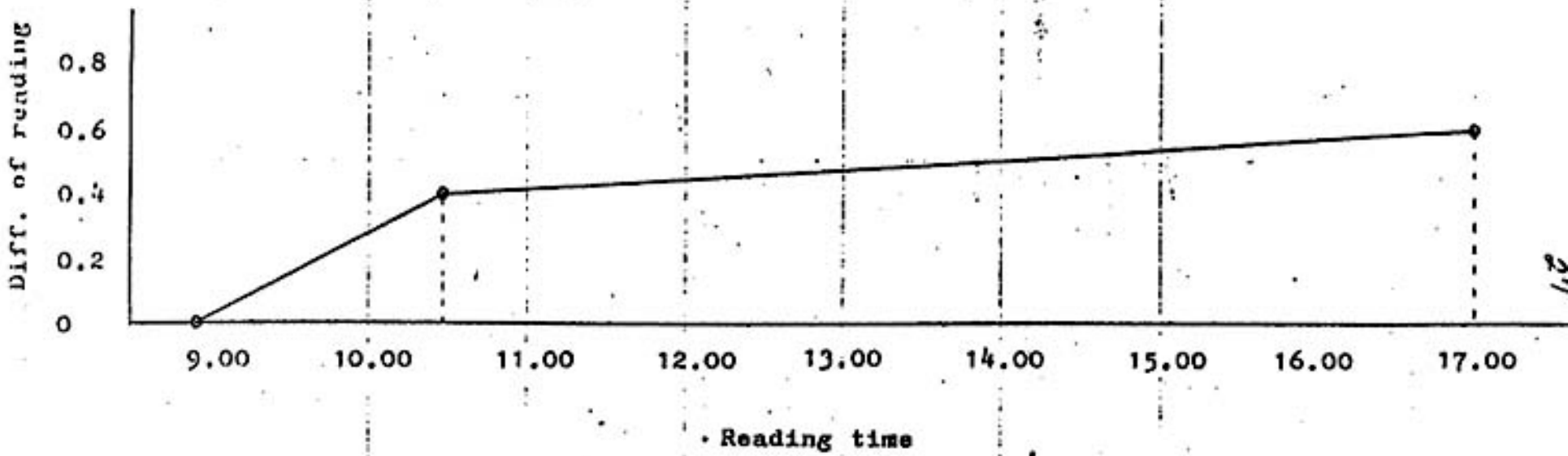

Figure 24. Diagram of drift correction.

APPENDIX B

THE ABSOLUTE GRAVITY VALUE OF BASE STATION K25

		A	B	C
Station	Time	Reading	Drift corr.	A + B
MBS	9.58	487.7	0	487.7
BS K25	10.40	504.3	- 0.2	504.1
MBS	11.07	488.0	- 0.3	487.7
BS K25	11.37	504.3	- 0.4	503.9
BS K25	12.10	504.3	- 0.4	503.9
BS K25	13.35	504.6	- 0.7	503.9
BS K25	15.13	505.1	- 0.9	504.2
MBS	15.42	488.7	- 1.0	487.7

The average reading value of base station K25 (BS K25) is,

$$= \frac{504.1 + 503.9 + 503.9 + 503.9 + 504.2}{5} \text{ scales,}$$

= 504.0 scales.

The difference of reading values between the master base station (MBS) and the base station K25 is,

= 504.0 - 487.7 = 16.3 scales,

= 16.3 X 0.9395 milligals,

= 15.313 milligals.

The absolute gravity at BS K25 = 15.313 + absolute gravity at MBS,

= 15.313 + 979185.34 milligals,

= 979200.653 milligals.

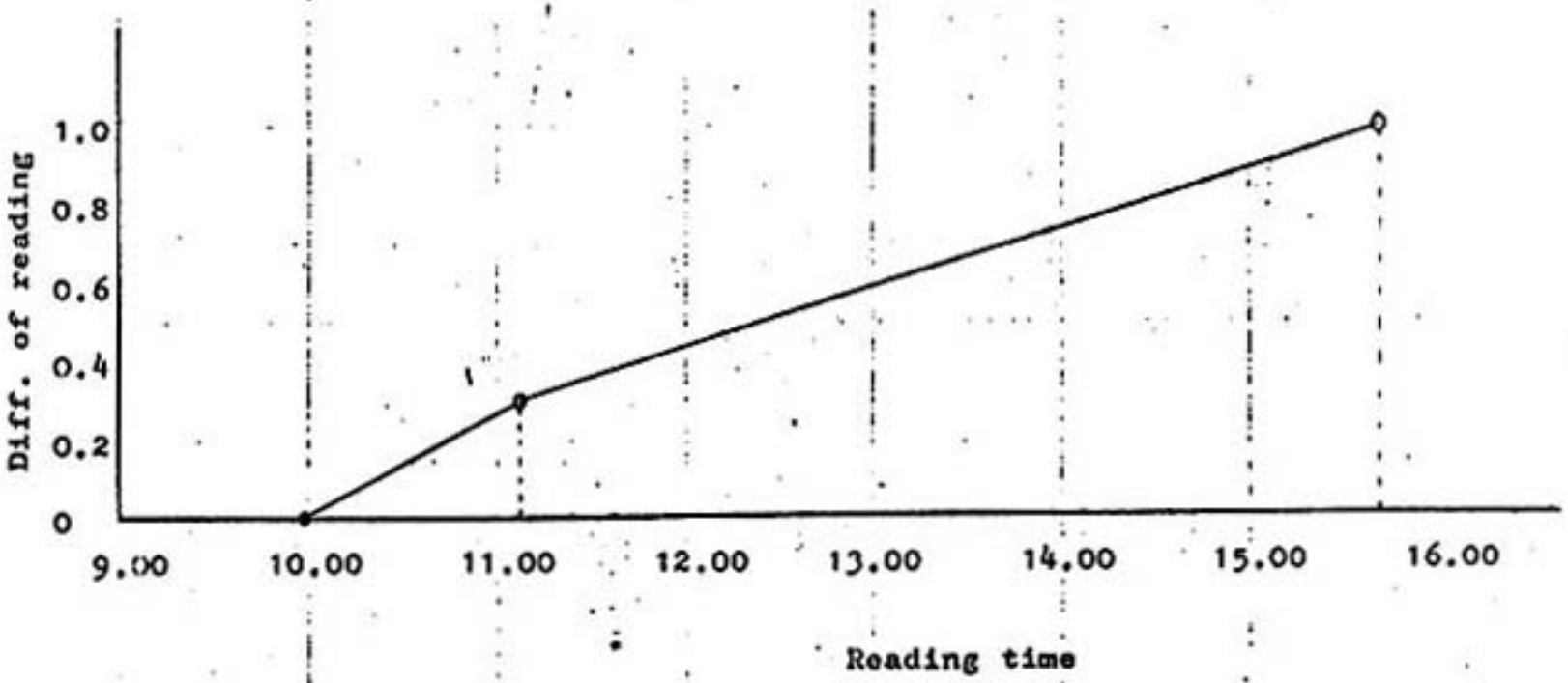

Figure 25. Diagram of drift correction.

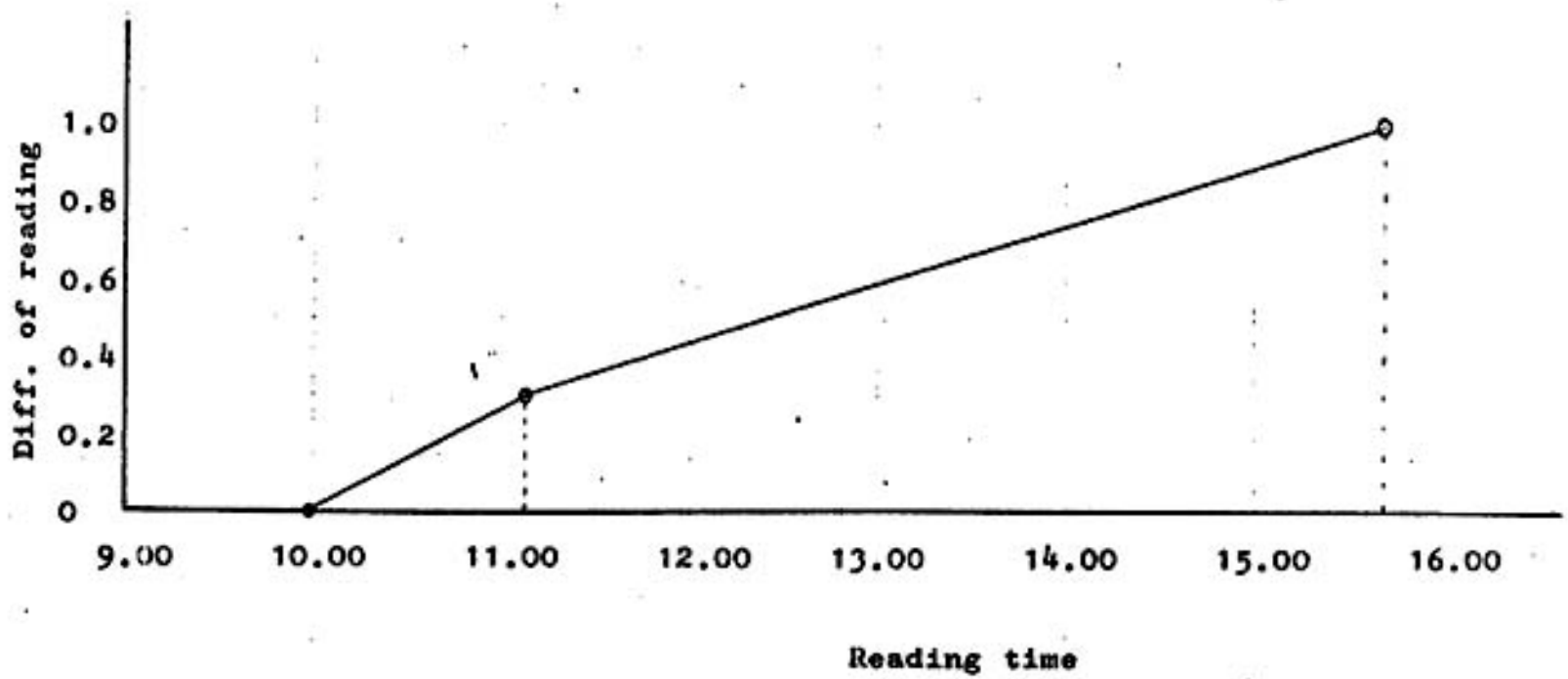

Figure 25. Diagram of drift correction.

APPENDIX C

THE GRADIENT OF THEORETICAL GRAVITY VALUES

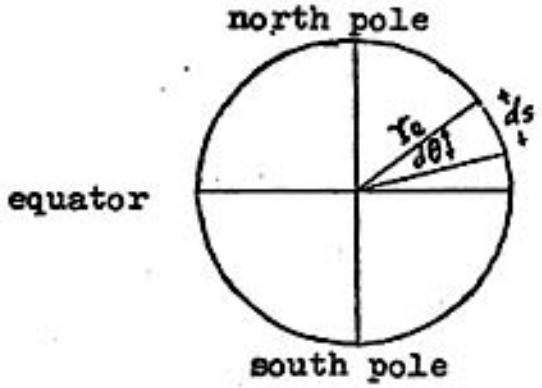

Figure 26. Diagram for the gradient of theoretical gravity values.

The gradient of the theoretical gravity value of each reference latitude is $\frac{d g_{th}}{d s}$. The change of the distance d s along the meridian will cause the change of the angle of latitude to $d\theta$. The average radius of the earth (r_e) is about 6371.221 X 10^5 cm.

From the International Gravity Formula the theoretical gravity value is,

$$g_{th} = g_e(1 + C_1 \sin^2\theta - C_2 \sin^2 2\theta)$$

$$= 978.04900(1+0.005288384\sin^2\theta-0.000005869\sin^2 2\theta) \text{ gals},$$

where $g_e = 978.04900$ gals ,

$C_1 = 0.005288384$,

$C_2 = 0.000005869$.

The change of the distance is $d s = r_e d\theta$.

Therefore,

$$\frac{d\,g_{th}}{d\,s} = \frac{g_e}{r_e}\left(2C_1\sin\theta\cos\theta - 4C_2\sin 2\theta\cos 2\theta \right),$$

$$= \frac{g_e}{r_e}\left(C_1\sin 2\theta - 2C_2\sin 4\theta \right),$$

$$= 24.6 \times 10^{-5} \sin 2\theta \quad \text{milligal/feet.}$$

That is the gradient of theoretical gravity value at each reference latitude can be calculated,

$$\frac{d\,g_{th}}{d\,s}(\text{ref. lat. } \theta) = 24.6 \times 10^{-5} \sin 2\theta \text{ milligal/feet.}$$

In this gravity survey the reference latitudes are 34° 07′ 30″ N, 34° 10′ 00″ N, 34° 12′ 30″ N and 34° 15′ 00″ N. The values of $\frac{d\,g_{th}}{d\,s}$ of each reference latitude are,

$$\frac{d\,g_{th}}{d\,s}(34^\circ\ 07'\ 30''\ N) = 24.6 \times 10^{-5} \times \sin 68^\circ\ 15' \text{ milligal/feet,}$$

$$= 22.849 \times 10^{-5} \text{ milligal feet,}$$

$$\frac{d\,g_{th}}{d\,s}(34^\circ\ 10'\ 00''\ N) = 24.6 \times 10^{-5} \times \sin 68^\circ\ 20' \text{ milligal/feet,}$$

$$= 22.862 \times 10^{-5} \text{ milligal/feet,}$$

$$\frac{d\,g_{th}}{d\,s}(34^\circ\ 12'\ 30''\ N) = 24.6 \times 10^{-5} \times \sin 68^\circ\ 25' \text{ milligal/feet,}$$

$$= 22.875 \times 10^{-5} \text{ milligal/feet,}$$

$$\frac{d\,g_{th}}{d\,s}(34^\circ\ 15'\ 00''\ N) = 24.6 \times 10^{-5} \times \sin 68^\circ\ 30' \text{ milligal/feet,}$$

$$= 22.888 \times 10^{-5} \text{ milligal/feet.}$$

The values of theoretical gravity (g_{th}) of each reference latitude can be calculated from the International Gravity Formula. The value of g_{th} of each reference latitude is,

g_{th} (34° 07′ 30″ N) = 979671.879 milligals,

g_{th} (34° 10′ 00″ N) = 979675.357 milligals,

g_{th} (34° 12′ 30″ N) = 979678.839 milligals,

g_{th} (34° 15′ 00″ N) = 979682.324 milligals.

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$ $ $ INPUT DATA $ $ $

MODEL [illegible] DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE [illegible], MODIFIED NUMBER [illegible]
COMMENTS: GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N.MEX

EXECUTION CODE = [illegible] 36 LAYERS 40 CALCULATION POINTS DENSITY CONTRAST 2.6670 GM/CC

CP#	XC	ZC	ANOMALY	CP#	XC	ZC	ANOMALY
1	10.0	-0.457E-01	-3.51	2	10.6	-0.457E-01	-3.90
3	11.1	-0.457E-01	-5.10	4	11.8	-0.457E-01	-4.70
5	12.2	-0.457E-01	-6.40	6	12.8	-0.457E-01	-7.30
7	13.1	-0.457E-01	-8.40	8	13.5	-0.457E-01	-7.70
9	13.8	-0.457E-01	-9.56	10	14.2	-0.457E-01	-11.0
11	14.9	-0.457E-01	-12.5	12	15.0	-0.457E-01	-11.9
13	15.5	-0.457E-01	-15.2	14	16.0	-0.457E-01	-12.5
15	16.5	-0.457E-01	-17.7	16	17.1	-0.457E-01	[illegible]
17	17.6	-0.457E-01	-20.1	18	18.1	-0.457E-01	[illegible]
19	18.8	-0.457E-01	-19.1	20	19.1	-0.457E-01	-17.4
21	19.8	-0.457E-01	-18.5	22	20.3	-0.457E-01	-17.5
23	20.9	-0.457E-01	-17.5	24	21.3	-0.457E-01	-17.7
25	22.1	-0.457E-01	-7.10	26	22.8	-0.457E-01	-7.63
27	23.3	-0.457E-01	-6.70	28	24.0	-0.457E-01	-5.70
29	24.5	-0.457E-01	-3.50	30	25.0	-0.457E-01	-6.40
31	25.6	-0.457E-01	-7.00	32	26.0	-0.457E-01	-7.10
33	26.3	-0.457E-01	-7.00	34	27.0	-0.457E-01	-6.23
35	27.7	-0.457E-01	-4.90	36	28.3	-0.457E-01	-5.40
37	29.0	-0.457E-01	-2.25	38	29.6	-0.457E-01	-2.13
39	30.2	-0.457E-01	-1.80	40	30.8	-0.457E-01	-1.10

LAYER #	DENSITY (GM/CC)	POINTS	COORDINATES
1	2.2000	5	16.2 0.0 19.5 0.0 19.5 0.213 16.2 0.213 16.2 0.0
2	2.2000	17	0.0 0.0 16.2 0.0 16.2 0.213 19.5 0.213 19.5 0.0 21.5 0.0 21.5 0.305 21.5 0.610 20.8 0.610 20.8 0.915 14.8 0.915 14.8 0.457 13.5 0.457 13.5 0.152 0.0 0.152 0.0 0.0 [illegible]
3	2.3800	5	0.0 0.152 11.0 0.152 11.0 0.457 0.0 0.457 0.0 0.152
4	2.4200	5	0.0 0.457 9.30 0.457 9.30 0.762 0.0 0.762 0.0 0.457
5	2.3200	5	0.0 0.762 7.70 0.762 7.70 1.07 0.0 1.07 0.0 0.762
6	2.3000	5	0.0 1.07 6.10 1.07 6.10 1.37 0.0 1.37 0.0 1.07
7	2.3800	5	0.0 1.37 4.50 1.37 4.50 1.68 0.0 1.68 0.0 1.37
8	2.3600	5	0.0 1.68 3.00 1.68 3.00 1.98 0.0 1.98 0.0 1.68
9	2.5200	5	0.0 1.98 1.50 1.98 1.50 2.29 0.0 2.29 0.0 1.98
10	2.3950	5	15.4 0.915 20.4 0.915 20.4 1.22 15.4 1.22 15.4 0.915
11	2.4200	5	15.6 1.22 20.2 1.22 20.2 1.52 15.6 1.52 15.6 1.22
12	2.3200	5	15.8 1.52 20.0 1.52 20.0 1.83 15.8 1.83 15.8 1.52
13	2.3000	5	16.0 1.83 19.8 1.83 19.8 2.13 16.0 2.13 16.0 1.83
14	2.3800	5	16.2 2.13 19.6 2.13 19.6 2.44 16.2 2.44 16.2 2.13
15	2.5600	5	16.4 2.44 19.4 2.44 19.4 2.74 16.4 2.74 16.4 2.44
16	2.5200	5	16.6 2.74 19.2 2.74 19.2 3.05 16.6 3.05 16.6 2.74
17	2.6000	5	16.8 3.05 19.0 3.05 19.0 3.35 16.8 3.35 16.8 3.05
18	2.5500	5	17.0 3.35 18.8 3.35 18.8 3.66 17.0 3.66 17.0 3.35
19	2.3700	5	25.5 0.0 27.4 0.0 27.4 0.305 25.5 0.305 25.5 0.0
20	2.3000	5	25.5 0.305 27.4 0.305 27.4 0.610 25.5 0.610 25.5 0.305
21	2.3600	5	25.5 0.610 27.4 0.610 27.4 0.915 25.5 0.915 25.5 0.610
22	2.5600	5	25.5 0.915 27.4 0.915 27.4 1.22 25.5 1.22 25.5 0.915
23	2.5200	5	25.5 1.22 27.4 1.22 27.4 1.52 25.5 1.52 25.5 1.22
24	2.6000	5	25.5 1.52 27.4 1.52 27.4 1.83 25.5 1.83 25.5 1.52
25	2.5500	5	25.5 1.83 27.4 1.83 27.4 2.13 25.5 2.13 25.5 1.83
26	2.3900	5	27.4 0.0 31.7 0.0 31.7 0.183 27.4 0.183 27.4 0.0
27	2.5650	5	27.4 0.183 31.7 0.183 31.7 0.488 27.4 0.488 27.4 0.183
28	2.5200	5	27.4 0.488 31.7 0.488 31.7 0.793 27.4 0.793 27.4 0.488
29	2.6000	5	27.4 0.793 31.7 0.793 31.7 1.10 27.4 1.10 27.4 0.793
30	2.5500	5	27.4 1.10 31.7 1.10 31.7 1.40 27.4 1.40 27.4 1.10
31	2.3600	5	31.7 0.0 33.3 0.0 33.3 0.122 31.7 0.122 31.7 0.0
32	2.5200	5	31.7 0.122 33.3 0.122 33.3 0.427 31.7 0.427 31.7 0.122
33	2.6000	5	31.7 0.427 33.3 0.427 33.3 0.732 31.7 0.732 31.7 0.427
34	2.5500	5	31.7 0.732 33.3 0.732 33.3 1.04 31.7 1.04 31.7 0.732
35	[illegible]	5	33.3 0.0 [illegible] 0.0 [illegible] 0.152 33.3 0.152 33.3 0.0
36	2.6000	5	33.3 0.152 [illegible] 0.152 [illegible] 0.457 33.3 0.457 33.3 0.152

LAYER # [illegible]
LAYER # [illegible]
LAYER # [illegible]

TABLE 2.

TWO DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE AA', MODIFIED NUMBER 8
GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N. MEX

DENSITY CONTRAST 2.6670 G/CC

K	CALCULATION POINTS X COORD	Z COORD	GRAVITY ANOMALIES (MILLIGALS) HORIZONTAL	VERTICAL	TOTAL	OBSERVED	DEVIATION	[illegible]
1	1.00000E 01	-4.57500E-02	-1.39647E 00	-9.12477E 00	9.23131E 00	-6.50000E 00	2.62477E 00	[illegible]
2	1.06700E 01	-4.57500E-02	-1.99790E 00	-8.47941E 00	8.70970E 00	-5.90000E 00	2.57941E 00	[illegible]
3	1.11000E 01	-4.57500E-02	-2.08476E 00	-7.16677E 00	7.46394E 00	-5.30000E 00	1.86677E 00	[illegible]
4	1.18000E 01	-4.57500E-02	-5.51166E 00	-6.46292E 00	8.49398E 00	-4.70000E 00	1.76292E 00	[illegible]
5	1.22000E 01	-4.57500E-02	-7.09520E 00	-6.64843E 00	9.72335E 00	-4.80000E 00	1.84843E 00	[illegible]
6	1.27600E 01	-4.57500E-02	-9.50613E 00	-7.35297E 00	1.20186E 01	-5.30000E 00	2.05297E 00	[illegible]
7	1.31300E 01	-4.57500E-02	-1.14030E 01	-8.35094E 00	1.41336E 01	-6.40000E 00	1.95094E 00	[illegible]
8	1.35500E 01	-4.57500E-02	-1.33498E 01	-1.09058E 01	1.72374E 01	-7.70000E 00	3.20581E 00	[illegible]
9	1.38500E 01	-4.57500E-02	-1.35596E 01	-1.26473E 01	1.85423E 01	-9.50000E 00	3.14673E 00	[illegible]
10	1.41700E 01	-4.57500E-02	-1.37500E 01	-1.44567E 01	1.99514E 01	-1.10000E 01	3.45670E 00	[illegible]
11	1.45700E 01	-4.57500E-02	-1.41003E 01	-1.67102E 01	2.18643E 01	-1.25000E 01	4.21020E 00	[illegible]
12	1.50300E 01	-4.57500E-02	-1.37861E 01	-1.96519E 01	2.41939E 01	-1.39000E 01	5.75190E 00	[illegible]
13	1.54700E 01	-4.57500E-02	-1.25407E 01	-2.26084E 01	2.59061E 01	-1.52050E 01	7.40340E 00	[illegible]
14	1.60000E 01	-4.57500E-02	-1.06617E 01	-2.55013E 01	2.76403E 01	-1.65000E 01	9.00130E 00	[illegible]
15	1.65000E 01	-4.57500E-02	-7.74390E 00	-2.84743E 01	2.95086E 01	-1.77000E 01	1.07743E 01	[illegible]
16	1.71000E 01	-4.57500E-02	-3.59247E 00	-3.00119E 01	3.02261E 01	-1.90000E 01	1.10119E 01	[illegible]
17	1.76500E 01	-4.57500E-02	1.06396E-01	-3.06184E 01	3.06186E 01	-2.01000E 01	1.05184E 01	[illegible]
18	1.83000E 01	-4.57500E-02	4.47196E 00	-3.05069E 01	3.08349E 01	-2.02000E 01	1.03069E 01	[illegible]
19	1.88300E 01	-4.57500E-02	8.06909E 00	-2.97371E 01	3.08124E 01	-1.93000E 01	1.04371E 01	[illegible]
20	1.93200E 01	-4.57500E-02	1.15773E 01	-2.82620E 01	3.05413E 01	-1.79000E 01	1.03620E 01	[illegible]
21	1.97600E 01	-4.57500E-02	1.38503E 01	-2.55511E 01	2.90636E 01	-1.65000E 01	9.05110E 00	[illegible]
22	2.03500E 01	-4.57500E-02	1.59664E 01	-2.24250E 01	2.75282E 01	-1.44000E 01	8.02500E 00	[illegible]
23	2.09000E 01	-4.57500E-02	1.72457E 01	-1.89378E 01	2.56136E 01	-1.25000E 01	6.43780E 00	[illegible]
24	2.15000E 01	-4.57500E-02	1.72752E 01	-1.48153E 01	2.27579E 01	-1.07000E 01	4.11530E 00	[illegible]
25	2.21000E 01	-4.57500E-02	1.52538E 01	-1.16531E 01	1.91956E 01	-9.10000E 00	2.55310E 00	[illegible]
26	2.28000E 01	-4.57500E-02	1.29407E 01	-1.01427E 01	1.64419E 01	-7.60000E 00	2.54270E 00	[illegible]
27	2.34300E 01	-4.57500E-02	1.12855E 01	-9.57203E 00	1.47982E 01	-6.70000E 00	2.87203E 00	[illegible]
28	2.40300E 01	-4.57500E-02	9.91834E 00	-9.47107E 00	1.37140E 01	-5.70000E 00	3.77107E 00	[illegible]
29	2.45000E 01	-4.57500E-02	8.93245E 00	-9.73166E 00	1.32096E 01	-5.50000E 00	4.23166E 00	[illegible]
30	2.50400E 01	-4.57500E-02	7.98907E 00	-1.06326E 01	1.32996E 01	-6.40000E 00	4.23260E 00	[illegible]
31	2.55700E 01	-4.57500E-02	8.05285E 00	-1.20228E 01	1.44705E 01	-7.00000E 00	5.02280E 00	[illegible]
32	2.59800E 01	-4.57500E-02	8.73163E 00	-1.31305E 01	1.57687E 01	-7.30000E 00	5.83050E 00	[illegible]
33	2.64600E 01	-4.57500E-02	1.03348E 01	-1.36769E 01	1.71425E 01	-7.00000E 00	6.67690E 00	[illegible]
34	2.70500E 01	-4.57500E-02	1.26197E 01	-1.30873E 01	1.81770E 01	-6.20000E 00	6.88730E 00	[illegible]
35	2.77300E 01	-4.57500E-02	1.36162E 01	-1.02494E 01	1.70426E 01	-4.80000E 00	5.44940E 00	[illegible]
36	2.83500E 01	-4.57500E-02	1.29636E 01	-9.05450E 00	1.58126E 01	-3.80000E 00	5.25450E 00	[illegible]
37	2.89800E 01	-4.57500E-02	1.25859E 01	-8.48524E 00	1.51791E 01	-2.90000E 00	5.58524E 00	[illegible]
38	2.96200E 01	-4.57500E-02	1.24582E 01	-8.11047E 00	1.48656E 01	-2.30000E 00	5.81047E 00	[illegible]
39	3.02200E 01	-4.57500E-02	1.25374E 01	-7.80945E 00	1.47707E 01	-1.80000E 00	6.00945E 00	-1.01371E 00
40	3.08500E 01	-4.57500E-02	1.28344E 01	-7.45256E 00	1.48413E 01	-1.36000E 00	6.15257E 00	-1.[illegible]471E 00

TOTAL RUNNING TIME FOR THIS JOB WAS 40.000

TABLE 3.

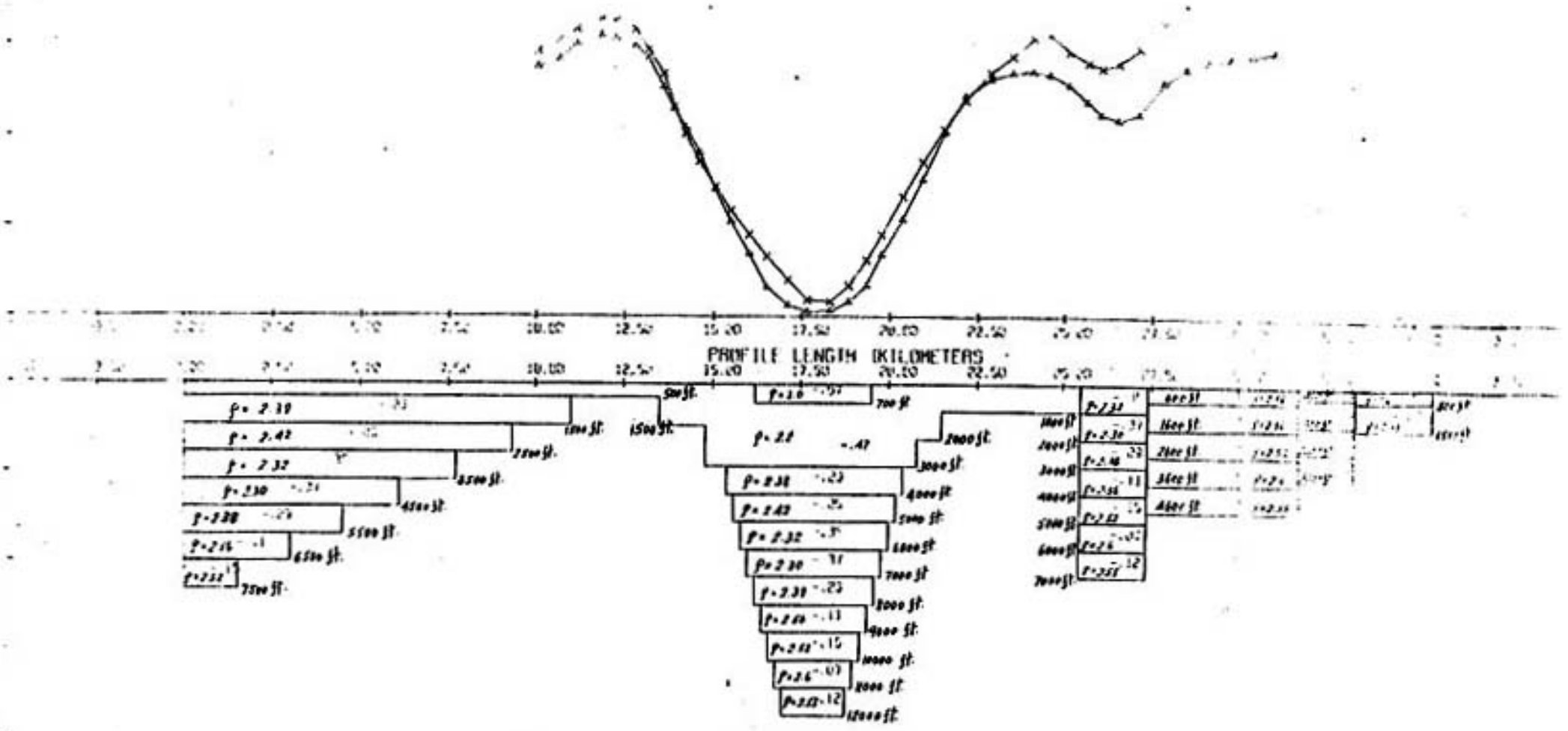

Figure 8. Observed and computed gravity curves, from data table 2.

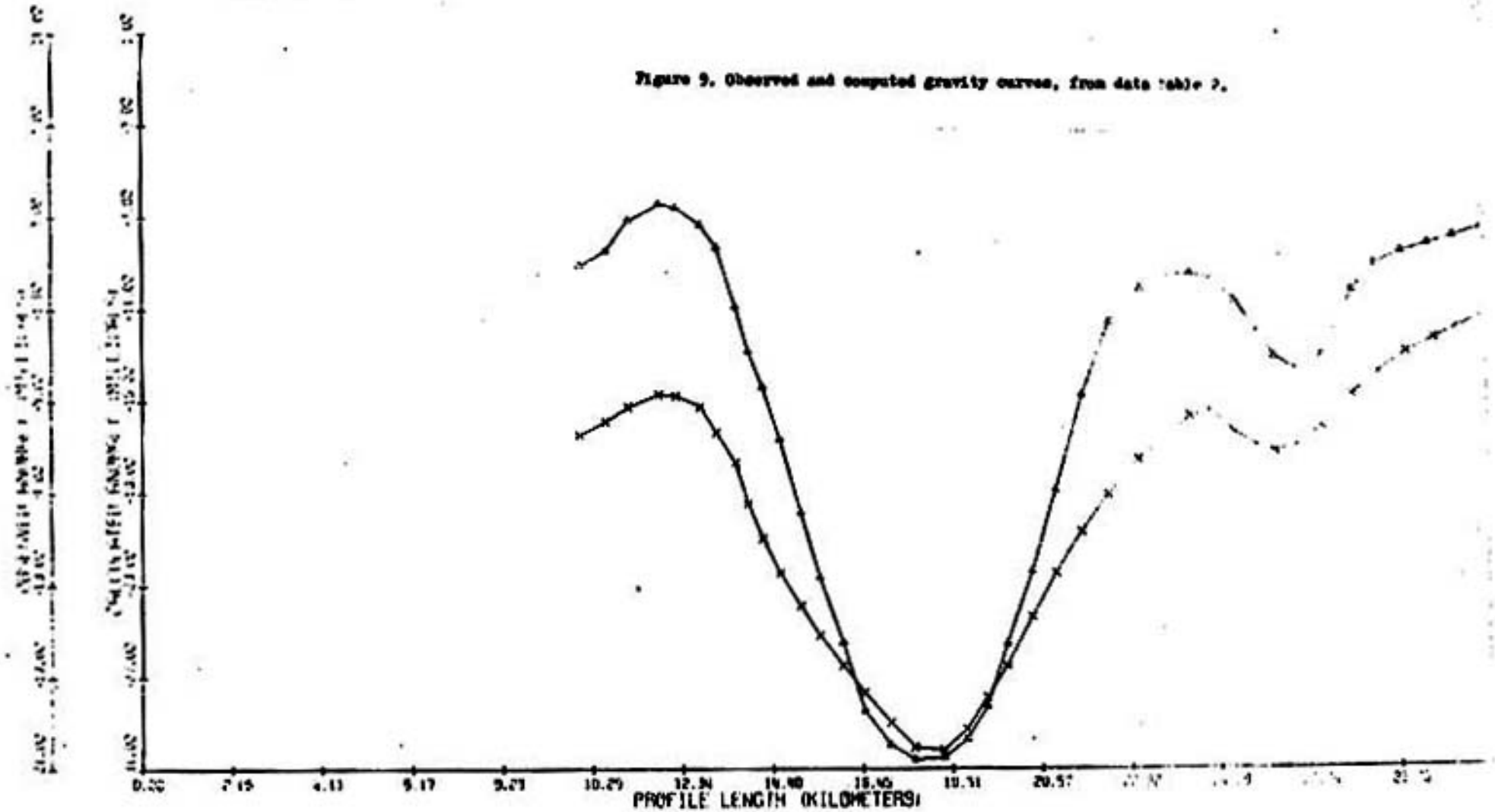

Figure 9. Observed and computed gravity curves, from data table 2.

* * * INPUT DATA * * * 34

MODEL CALCULATED TWO DIMENSIONAL GRAVITY ANOMALIES MODEL=PROFILE AA',MODIFIED NUMBER 4
[illegible] GRAVITY SURVEY IN NORTHERN END OF [illegible] BASIN,[illegible] COUNTY,N.MEX

EXECUTION CODE = 1102J1104   36 LAYERS   40 CALCULATION POINTS   DENSITY CONTRAST 2.6670 GM/CC

CP#	XC	ZC	ANOMALY	CP#	XC	ZC	ANOMALY
1	10.0	-0.457E-01	-6.5?	2	10.6	-0.457E-01	-5.72?
3	11.1	-0.457E-01	-5.30	4	11.3	-0.457E-01	[illegible]
5	12.2	-0.457E-01	-4.80	6	12.4	-0.457E-01	-5.10
7	13.1	-0.457E-01	-6.45	8	13.5	-0.457E-01	-7.73
9	13.8	-0.457E-01	-9.50	10	14.2	-0.457E-01	-11.0
11	14.6	-0.457E-01	-12.3	12	15.0	-0.457E-01	-13.9
13	15.5	-0.457E-01	-15.2	14	16.0	-0.457E-01	-16.5
15	16.5	-0.457E-01	-17.7	16	17.1	-0.457E-01	-19.0
17	17.4	-0.457E-01	-20.1	18	18.1	-0.457E-01	-22.2
19	18.3	-0.457E-01	-19.1	20	19.1	-0.457E-01	-17.9
21	19.8	-0.457E-01	-16.3	22	20.3	-0.457E-01	-14.4
23	20.9	-0.457E-01	-12.3	24	21.3	-0.457E-01	-10.7
25	22.1	-0.457E-01	-9.10	26	22.8	-0.457E-01	-7.60
27	23.4	-0.457E-01	-6.70	28	24.0	-0.457E-01	-5.70
29	24.5	-0.457E-01	-5.90	30	25.0	-0.457E-01	-6.41
31	25.6	-0.457E-01	-7.00	32	26.0	-0.457E-01	-7.30
33	26.5	-0.457E-01	-7.00	34	27.0	-0.457E-01	-6.25
35	27.4	-0.457E-01	-4.80	36	28.3	-0.457E-01	-3.83
37	29.0	-0.457E-01	-2.90	38	29.6	-0.457E-01	-2.10
39	30.2	-0.457E-01	-1.60	40	30.8	-0.457E-01	-1.30

LAYER #	DENSITY		POINTS										
1	2.0030	GM/CC	5	16.8	0.0	17.4	0.0	19.0	0.152	16.8	0.152	16.8	0.0
2	2.2000	GM/CC	15	0.0	0.0	16.8	0.0	16.8	0.152	19.0	0.152	19.0	0.0
				22.3	0.0	35.5	0.305	22.3	0.305	22.3	0.457	14.8	0.457
				14.8	0.305	13.4	0.305	13.8	0.152	[illegible]	0.152	0.0	0.0
3	2.2400	GM/CC	5	0.0	0.152	10.5	0.152	10.5	0.457	0.0	0.457	0.0	0.152
4	2.4200	GM/CC	5	0.0	0.457	9.00	0.457	9.00	0.762	0.0	0.762	0.0	0.457
5	2.3200	GM/CC	5	0.0	0.762	7.50	0.762	7.50	1.07	0.0	1.07	0.0	0.762
6	2.3030	GM/CC	5	0.0	1.07	6.00	1.07	6.00	1.37	0.0	1.37	0.0	1.07
7	2.3800	GM/CC	5	0.0	1.37	4.50	1.37	4.50	1.68	0.0	1.68	0.0	1.37
8	2.5600	GM/CC	5	0.0	1.68	3.00	1.68	3.00	1.98	0.0	1.98	0.0	1.68
9	2.5250	GM/CC	5	0.0	1.98	1.50	1.98	1.50	2.29	0.0	2.29	0.0	1.98
10	2.3400	GM/CC	5	15.4	0.457	21.0	0.457	21.0	0.762	15.4	0.762	15.4	0.457
11	2.4200	GM/CC	5	15.6	0.762	20.8	0.762	20.8	1.07	15.6	1.07	15.6	0.762
12	2.3200	GM/CC	5	15.8	1.07	20.6	1.07	20.6	1.37	15.8	1.37	15.8	1.07
13	2.3000	GM/CC	5	16.0	1.37	20.4	1.37	20.4	1.68	16.0	1.68	16.0	1.37
14	2.3800	GM/CC	5	16.2	1.68	20.2	1.68	20.2	1.98	16.2	1.98	16.2	1.68
15	2.5600	GM/CC	5	16.4	1.98	20.0	1.98	20.0	2.29	16.4	2.29	16.4	1.98
16	2.5200	GM/CC	5	16.6	2.29	19.8	2.29	19.8	2.59	16.6	2.59	16.6	2.29
17	2.6000	GM/CC	5	16.8	2.59	19.6	2.59	19.6	2.90	16.8	2.90	16.8	2.59
18	2.5500	GM/CC	5	17.0	2.90	19.4	2.90	19.4	3.20	17.0	3.20	17.0	2.90
19	2.3200	GM/CC	5	25.5	0.0	27.4	0.0	27.4	0.305	25.5	0.305	25.5	0.0
20	2.3000	GM/CC	5	25.5	0.305	27.4	0.305	27.4	0.610	25.5	0.610	25.5	0.305
21	2.3800	GM/CC	5	25.5	0.610	27.4	0.610	27.4	0.915	25.5	0.915	25.5	0.610
22	2.5500	GM/CC	5	25.5	0.915	27.4	0.915	27.4	1.22	25.5	1.22	25.5	0.915
23	2.5250	GM/CC	5	25.5	1.22	27.4	1.22	27.4	1.52	25.5	1.52	25.5	1.22
24	2.6000	GM/CC	5	25.5	1.52	27.4	1.52	27.4	1.83	25.5	1.83	25.5	1.52
25	2.5500	GM/CC	5	25.5	1.83	27.4	1.83	27.4	2.13	25.5	2.13	25.5	1.83
26	2.3800	GM/CC	5	27.4	0.0	31.7	0.0	31.7	0.183	27.4	0.183	27.4	0.0
27	2.5600	GM/CC	5	27.4	0.183	31.7	0.183	31.7	0.488	27.4	0.488	27.4	0.183
28	2.5290	GM/CC	5	27.4	0.488	31.7	0.488	31.7	0.793	27.4	0.793	27.4	0.488
29	2.6000	GM/CC	5	27.4	0.793	31.7	0.793	31.7	1.10	27.4	1.10	27.4	0.793
30	2.5500	GM/CC	5	27.4	1.10	31.7	1.10	31.7	1.40	27.4	1.40	27.4	1.10
31	2.3600	GM/CC	5	31.7	0.0	33.3	0.0	33.3	0.122	31.7	0.122	31.7	0.0
32	2.5200	GM/CC	5	31.7	0.122	33.3	0.122	33.3	0.427	31.7	0.427	31.7	0.122
33	2.6300	GM/CC	5	31.7	0.427	33.3	0.427	33.3	0.732	31.7	0.732	31.7	0.427
34	2.5500	GM/CC	5	31.7	0.732	33.3	0.732	33.3	1.04	31.7	1.04	31.7	0.732
35	[illegible]	GM/CC	5	33.3	0.0	34.4	0.0	34.4	0.152	33.3	0.152	33.3	0.0
36	2.5000	GM/CC	5	33.3	0.152	34.4	0.152	34.4	0.457	33.3	0.457	33.3	0.152

LAYER # 11 [illegible] # 1 POINT # 5 [illegible] 1.000000 OF AREA 1 [illegible]
LAYER # 13 [illegible] # 2 POINT # 5 [illegible] 1.000000 OF AREA 1 [illegible]

TABLE 4.

TWO DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE AA', MODIFIED NUMBER 4
GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N.MEX

DENSITY CONTRAST 2.6670 GM/CC

K	CALCULATION POINTS X COORD	Z COORD	GRAVITY ANOMALIES (MILLIGALS) HORIZONTAL	VERTICAL	TOTAL	OBSERVED	DEVIATION	[illegible]
1	1.00000E 01	-4.57500E-02	1.13175E 00	-8.16230E 00	8.26019E 00	-6.50000E 00	1.66230E 00	-1.375[illegible]
2	1.06000E 01	-4.57500E-02	6.75662E-01	-6.51955E 00	6.55944E 00	-5.90000E 00	6.19505E-01	-1.0[illegible]
3	1.11000E 01	-4.57500E-02	-9.95470E-01	-5.62310E 00	5.71054E 00	-5.30000E 00	3.23165E-01	[illegible]
4	1.18000E 01	-4.57500E-02	-3.05242E 00	-5.45656E 00	6.25255E 00	-4.70000E 00	7.56563E-01	[illegible]
5	1.22300E 01	-4.57500E-02	-4.15819E 00	-5.55226E 00	6.73672E 00	-4.60000E 00	7.52263E-01	[illegible]
6	1.27600E 01	-4.57500E-02	-5.78784E 00	-5.67573E 00	8.24055E 00	-5.30000E 00	5.74231E-01	[illegible]
7	1.31300E 01	-4.57500E-02	-7.01444E 00	-6.76060E 00	9.40237E 00	-6.40000E 00	-1.79397E-01	[illegible]
8	1.35500E 01	-4.57500E-02	-8.69242E 00	-7.11142E 00	1.12306E 01	-7.70000E 00	-5.88576E-01	[illegible]
9	1.38500E 01	-4.57500E-02	-9.75185E 00	-8.43476E 00	1.29230E 01	-9.50000E 00	-1.06524E 00	[illegible]
10	1.41700E 01	-4.57500E-02	-1.02646E 01	-9.80464E 00	1.41949E 01	-1.10000E 01	-1.19535E 00	[illegible]
11	1.45700E 01	-4.57500E-02	-1.10219E 01	-1.13977E 01	1.58249E 01	-1.25000E 01	-1.16287E 00	[illegible]
12	1.50300E 01	-4.57500E-02	-1.15662E 01	-1.39736E 01	1.81407E 01	-1.37000E 01	7.3650[illegible]E-02	[illegible]
13	1.54700E 01	-4.57500E-02	-1.17503E 01	-1.66354E 01	2.00675E 01	-1.52000E 01	1.43539E 00	[illegible]
14	1.60000E 01	-4.57500E-02	-9.64691E 00	-1.95794E 01	2.17861E 01	-1.65000E 01	3.07944E 00	[illegible]
15	1.65000E 01	-4.57500E-02	-8.07322E 00	-2.17405E 01	2.31737E 01	-1.77000E 01	4.04091E 00	[illegible]
16	1.71000E 01	-4.57500E-02	-5.02403E 00	-2.43294E 01	2.48427E 01	-1.90000E 01	5.12936E 00	[illegible]
17	1.76500E 01	-4.57500E-02	-1.73660E 00	-2.52224E 01	2.52800E 01	-2.01000E 01	5.12874E 00	[illegible]
18	1.83000E 01	-4.57500E-02	2.07034E 00	-2.54839E 01	2.55639E 01	-2.02000E 01	5.28392E 00	-7.911[illegible]
19	1.88300E 01	-4.57500E-02	5.28353E 00	-2.50076E 01	2.55591E 01	-1.93000E 01	5.70703E 00	-2.0[illegible]
20	1.93200E 01	-4.57500E-02	7.57148E 00	-2.33871E 01	2.45822E 01	-1.79000E 01	5.48715E 00	-3.1[illegible]
21	1.97600E 01	-4.57500E-02	9.36929E 00	-2.22218E 01	2.41162E 01	-1.65000E 01	5.72176E 00	-3.99[illegible]
22	2.03500E 01	-4.57500E-02	1.16772E 01	-2.00020E 01	2.31330E 01	-1.44000E 01	5.60195E 00	-5.263[illegible]
23	2.09000E 01	-4.57500E-02	1.29363E 01	-1.71971E 01	2.15195E 01	-1.25000E 01	4.69713E 00	-6.44[illegible]
24	2.15000E 01	-4.57500E-02	1.29001E 01	-1.42654E 01	1.92331E 01	-1.07000E 01	3.56539E 00	-7.351[illegible]
25	2.21000E 01	-4.57500E-02	1.24011E 01	-1.20629E 01	1.73143E 01	-9.10000E 00	2.96283E 00	-7.9[illegible]
26	2.28000E 01	-4.57500E-02	1.08483E 01	-9.91153E 00	1.46943E 01	-7.60000E 00	2.31153E 00	-5.36[illegible]
27	2.34300E 01	-4.57500E-02	9.26089E 00	-9.23627E 00	1.30936E 01	-6.70000E 00	2.53627E 00	-7.87[illegible]
28	2.40300E 01	-4.57500E-02	8.02381E 00	-9.14975E 00	1.21696E 01	-5.70000E 00	3.44979E 00	-7.1[illegible]
29	2.45000E 01	-4.57500E-02	7.12806E 00	-9.43431E 00	1.18244E 01	-5.50000E 00	3.93431E 00	-6.47[illegible]
30	2.50400E 01	-4.57500E-02	6.28461E 00	-1.03635E 01	1.21205E 01	-6.40000E 00	3.96351E 00	-5.45[illegible]
31	2.55700E 01	-4.57500E-02	6.44018E 00	-1.17801E 01	1.34256E 01	-7.00000E 00	4.70007E 00	-5.0[illegible]
32	2.59800E 01	-4.57500E-02	7.18539E 00	-1.29060E 01	1.47714E 01	-7.30000E 00	5.60602E 00	-5.0[illegible]
33	2.64600E 01	-4.57500E-02	8.86135E 00	-1.34717E 01	1.61248E 01	-7.00000E 00	6.47169E 00	-5.61[illegible]
34	2.70500E 01	-4.57500E-02	1.12790E 01	-1.28975E 01	1.71006E 01	-6.20000E 00	6.69750E 00	-7.163[illegible]
35	2.77300E 01	-4.57500E-02	1.23129E 01	-1.00847E 01	1.59157E 01	-4.80000E 00	5.78472E 00	-8.645[illegible]
36	2.83500E 01	-4.57500E-02	1.17335E 01	-8.90537E 00	1.47302E 01	-3.80000E 00	5.10537E 00	-9.215[illegible]
37	2.89800E 01	-4.57500E-02	1.14252E 01	-8.34972E 00	1.41511E 01	-2.90000E 00	5.44972E 00	-9.39[illegible]
38	2.96200E 01	-4.57500E-02	1.13641E 01	-7.98643E 00	1.38898E 01	-2.30000E 00	5.68643E 00	-9.58[illegible]
39	3.02200E 01	-4.57500E-02	1.15034E 01	-7.69422E 00	1.38394E 01	-1.80000E 00	5.89422E 00	-9.81274E-01
40	3.08500E 01	-4.57500E-02	1.18628E 01	-7.34491E 00	1.39525E 01	-1.30000E 00	6.04491E 00	-1.01641E 00

TOTAL RUNNING TIME FOR THIS JOB WAS 40.012

TABLE 5.

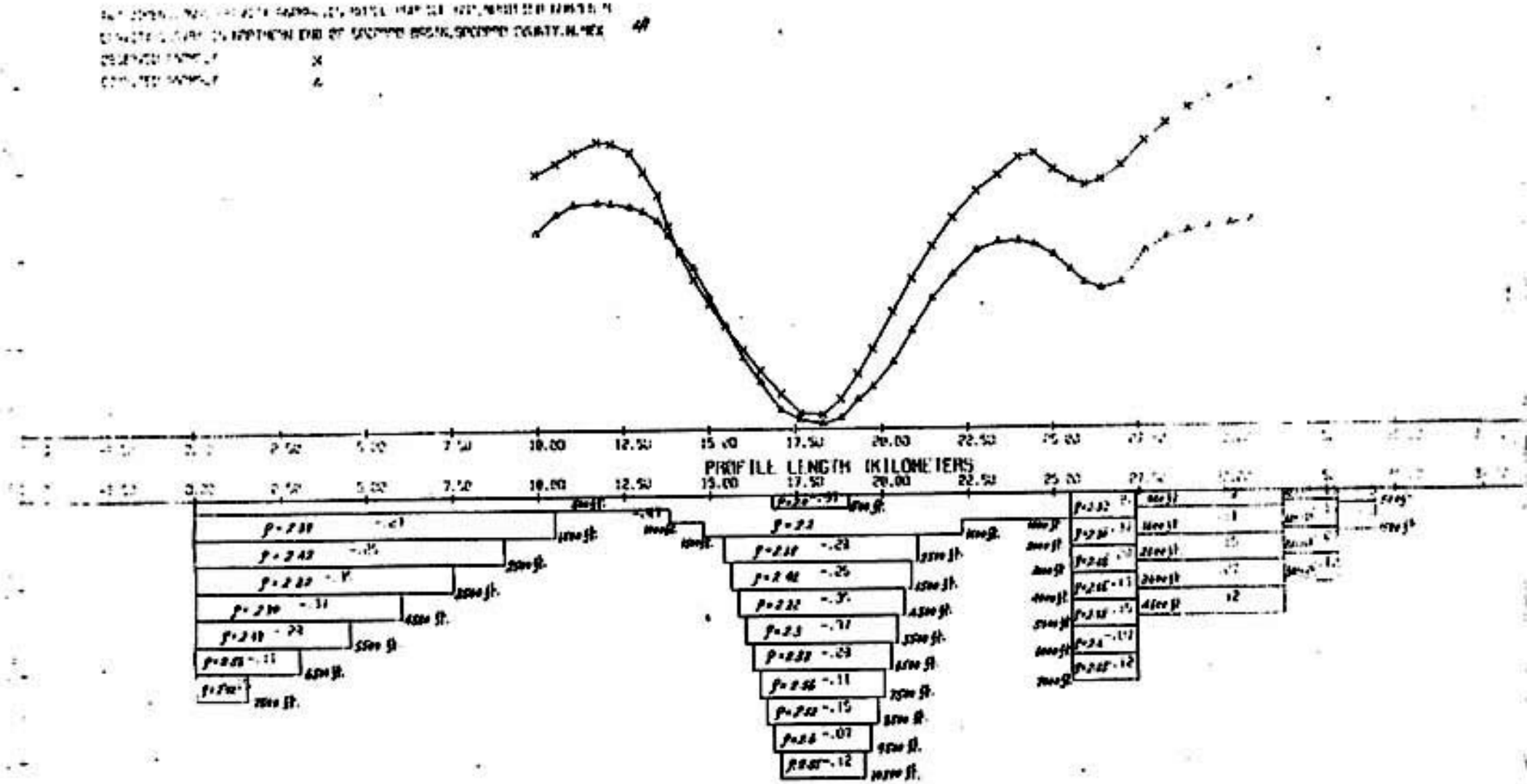

Figure 10. Observed and computed gravity curves, from data table 4.

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TWO DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE AA', MODIFIED NUMBER 8
GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N. MEX
CALCULATED ANOMALY △
OBSERVED ANOMALY ×

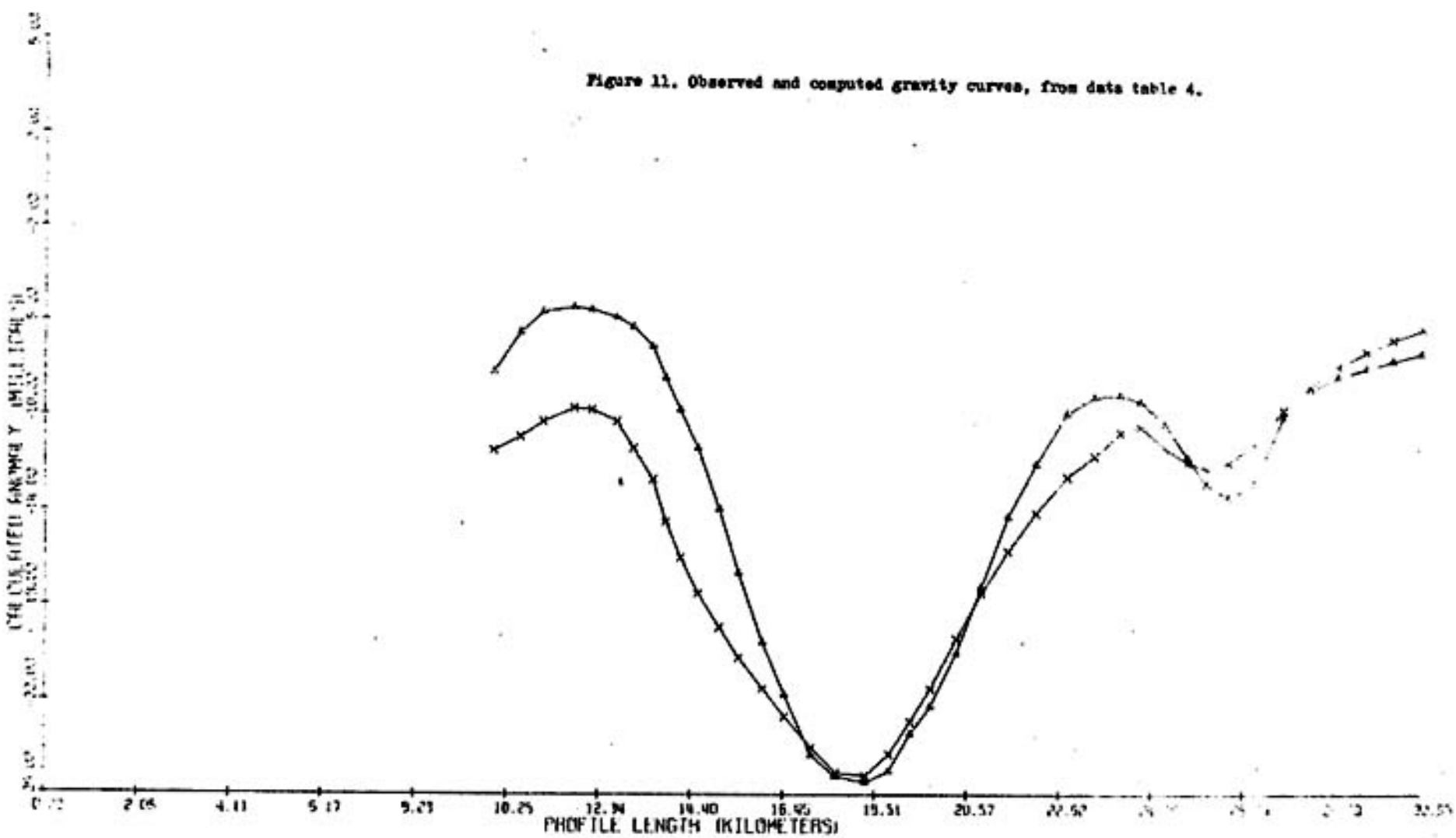

Figure 11. Observed and computed gravity curves, from data table 4.

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* * * INPUT DATA * * *

[illegible] TWO-DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE AA', [illegible]
[illegible] GRAVITY SURVEY [illegible] BASIN, [illegible] COUNTY, N.MEX

EXECUTION CODE = [illegible]    36 LAYERS    40 CALCULATION POINTS    DENSITY CONTRAST  2.[illegible]73   GM/CC

CPX    XC      ZC           ANOMALY     CPX   XC      ZC           ANOMALY
 1    10.0   -0.457E-01    -4.90        2   10.6   -0.457E-01    [illegible]
 3    11.1   -0.457E-01    -5.30        4   11.8   -0.457E-01    [illegible]
 5    12.[illegible]   -0.457E-01    [illegible]        6   12.8   -0.457E-01    [illegible]
 7    13.1   -0.457E-01    [illegible]        8   14.[illegible]   -0.457E-01    -7.70
 9    13.9   -0.457E-01    -9.90       10   14.7   -0.457E-01    -11.0
11    14.6   -0.457E-01    -12.5       12   15.6   -0.457E-01    -13.9
13    15.5   -0.457E-01    -15.[illegible]       14   16.0   -0.457E-01    -16.5
15    16.5   -0.457E-01    -17.7       16   17.1   -0.457E-01    -19.0
17    17.6   -0.457E-01    -20.1       18   18.1   -0.457E-01    [illegible]
19    18.6   -0.457E-01    -19.[illegible]       20   19.[illegible]   -0.457E-01    [illegible]
21    19.8   -0.457E-01    -16.5       22   21.3   -0.457E-01    -15.4
23    20.9   -0.457E-01    -12.5       24   21.5   -0.457E-01    -12.7
25    22.1   -0.457E-01    -8.10       26   22.8   -0.457E-01    -7.60
27    23.5   -0.457E-01    -6.70       28   24.0   -0.457E-01    -5.74
29    24.5   -0.457E-01    -7.30       30   25.0   -0.457E-01    -6.40
31    25.6   -0.457E-01    -7.00       32   26.0   -0.457E-01    -7.10
33    26.5   -0.457E-01    -7.80       34   27.5   -0.457E-01    -6.70
35    27.7   -0.457E-01    [illegible]       36   28.1   -0.457E-01    [illegible]
37    29.0   -0.457E-01    -2.30       38   29.6   -0.457E-01    -2.10
39    30.2   -0.457E-01    -1.40       40   30.8   -0.457E-01    -1.30
LAYER #  1 DENSITY =  2.0000  GM/CC   5 POINTS
 17.0   0.0    16.6   0.0    16.6   0.122  17.0   0.122  17.0   0.0
LAYER #  2 DENSITY =  2.[illegible]  GM/CC  15 POINTS
  0.0   0.0    17.0   0.0    17.0   0.122  18.6   0.122  19.6   0.0
 25.5   0.0    23.5   0.305  23.5   0.305  21.5   0.457  14.4   0.457
 14.4   0.305  13.2   0.305  13.2   0.152   0.0   0.152   0.0   0.0
LAYER #  3 DENSITY =  2.[illegible]  GM/CC   5 POINTS
  0.0   0.152  11.2   0.152  11.7   0.457   0.0   0.457   0.0   0.152
LAYER #  4 DENSITY =  2.4200  GM/CC   5 POINTS
  0.0   0.457  10.0   0.457  10.0   0.762   0.0   0.762   0.0   0.457
LAYER #  5 DENSITY =  2.3200  GM/CC   5 POINTS
  0.0   0.762   8.80  0.762   8.80  1.07    0.0   1.07    0.0   0.762
LAYER #  6 DENSITY =  2.3000  GM/CC   5 POINTS
  0.0   1.07    7.80  1.07    7.80  1.37    0.0   1.37    0.0   1.07
LAYER #  7 DENSITY =  2.[illegible]  GM/CC   5 POINTS
  0.0   1.37    6.20  1.37    6.20  1.68    0.0   1.68    0.0   1.37
LAYER #  8 DENSITY =  2.3600  GM/CC   5 POINTS
  0.0   1.68    4.70  1.68    4.70  1.98    0.0   1.98    0.0   1.68
LAYER #  9 DENSITY =  2.4200  GM/CC   5 POINTS
  0.0   1.98    3.10  1.98    3.10  2.29    0.0   2.29    0.0   1.98
LAYER # 10 DENSITY =  2.3500  GM/CC   5 POINTS
 15.4   0.457  21.0   0.457  21.0   0.762  15.4   0.762  15.4   0.457
LAYER # 11 DENSITY =  2.4200  GM/CC   5 POINTS
 15.6   0.762  20.8   0.762  20.8   1.07   15.6   1.07   15.6   0.762
LAYER # 12 DENSITY =  2.3200  GM/CC   5 POINTS
 15.8   1.07   20.6   1.07   20.6   1.37   15.8   1.37   15.8   1.07
LAYER # 13 DENSITY =  2.3000  GM/CC   5 POINTS
 16.0   1.37   20.4   1.37   20.4   1.68   16.0   1.68   16.0   1.37
LAYER # 14 DENSITY =  2.3400  GM/CC   5 POINTS
 16.2   1.68   20.2   1.68   20.2   1.98   16.2   1.98   16.2   1.68
LAYER # 15 DENSITY =  2.[illegible]  GM/CC   5 POINTS
 16.4   1.98   20.0   1.98   20.0   2.29   16.4   2.29   16.4   1.98
LAYER # 16 DENSITY =  2.5200  GM/CC   5 POINTS
 16.6   2.29   19.8   2.29   19.8   2.59   16.6   2.59   16.6   2.29
LAYER # 17 DENSITY =  2.6000  GM/CC   5 POINTS
 16.8   2.59   19.6   2.59   19.6   2.90   16.8   2.90   16.8   2.59
LAYER # 18 DENSITY =  2.5500  GM/CC   5 POINTS
 17.0   2.90   19.4   2.90   19.4   3.20   17.0   3.20   17.0   2.90
LAYER # 19 DENSITY =  2.[illegible]  GM/CC   5 POINTS
 25.5   0.0    27.4   0.0    27.4   0.305  25.5   0.305  25.5   0.0
LAYER # 20 DENSITY =  2.3000  GM/CC   5 POINTS
 25.5   0.305  27.4   0.305  27.4   0.610  25.5   0.610  25.5   0.305
LAYER # 21 DENSITY =  2.3400  GM/CC   5 POINTS
 25.5   0.610  27.4   0.610  27.4   0.915  25.5   0.915  25.5   0.610
LAYER # 22 DENSITY =  2.5600  GM/CC   5 POINTS
 25.5   0.915  27.4   0.915  27.4   1.22   25.5   1.22   25.5   0.915
LAYER # 23 DENSITY =  2.5[illegible]  GM/CC   5 POINTS
 25.5   1.22   27.4   1.22   27.4   1.52   25.5   1.52   25.5   1.22
LAYER # 24 DENSITY =  2.6000  GM/CC   5 POINTS
 25.5   1.52   27.4   1.52   27.4   1.83   25.5   1.83   25.5   1.52
LAYER # 25 DENSITY =  2.5400  GM/CC   5 POINTS
 25.5   1.83   27.4   1.83   27.4   2.13   25.5   2.13   25.5   1.83
LAYER # 26 DENSITY =  2.3800  GM/CC   5 POINTS
 27.4   0.0    31.7   0.0    31.7   0.183  27.4   0.183  27.4   0.0
LAYER # 27 DENSITY =  2.5600  GM/CC   5 POINTS
 27.4   0.183  31.7   0.183  31.7   0.488  27.4   0.488  27.4   0.183
LAYER # 28 DENSITY =  2.5200  GM/CC   5 POINTS
 27.4   0.488  31.7   0.488  31.7   0.793  27.4   0.793  27.4   0.488
LAYER # 29 DENSITY =  2.6000  GM/CC   5 POINTS
 27.4   0.793  31.7   0.793  31.7   1.10   27.4   1.10   27.4   0.793
LAYER # 30 DENSITY =  2.5500  GM/CC   5 POINTS
 27.4   1.10   31.7   1.10   31.7   1.40   27.4   1.40   27.4   1.10
LAYER # 31 DENSITY =  2.5600  GM/CC   5 POINTS
 31.7   0.0    33.3   0.0    33.3   0.122  31.7   0.122  31.7   0.0
LAYER # 32 DENSITY =  2.5200  GM/CC   5 POINTS
 31.7   0.122  33.3   0.122  33.3   0.427  31.7   0.427  31.7   0.122
LAYER # 33 DENSITY =  2.6000  GM/CC   5 POINTS
 31.7   0.427  33.3   0.427  33.3   0.732  31.7   0.732  31.7   0.427
LAYER # 34 DENSITY =  2.5500  GM/CC   5 POINTS
 31.7   0.732  33.3   0.732  33.3   1.04   31.7   1.04   31.7   0.732
LAYER # 35 DENSITY =  2.[illegible]  GM/CC   5 POINTS
 33.3   0.0    34.4   0.0    34.4   0.152  33.3   0.152  33.3   0.0
LAYER # 36 DENSITY =  2.[illegible]  GM/CC   5 POINTS
 33.3   0.152  34.4   0.152  34.4   0.457  33.3   0.457  33.3   0.152
[illegible]
[illegible]
[illegible]
[illegible]
```

TABLE 6.

TWO DIMENSIONAL GRAVITY ANOMALIES MODEL,PROFILE AA',MODIFIED NUMBER 4
GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN,SOCORRO COUNTY,N.MEX

DENSITY CONTRAST [illegible] GM/CC

K	CALCULATION POINTS X COORD	CALCULATION POINTS Z COORD	GRAVITY ANOMALIES (MILLIGALS) HORIZONTAL	GRAVITY ANOMALIES (MILLIGALS) VERTICAL	GRAVITY ANOMALIES (MILLIGALS) TOTAL	OBSERVED	DEVIATION	ALPHA
1	1.00000E 01	-4.57500E-02	2.67136E 00	-1.04997E 01	1.08337E 01	-6.50000E 00	3.99913E 00	-2.47144E-01
2	1.0[illegible] 01	-4.57500E-02	2.91168E 00	-9.14315E 00	9.40075E 00	-5.90000E 00	3.28119E 00	-2.1[illegible]E-01
3	1.1[illegible] 01	-4.57500E-02	1.55472E 00	-7.99344E 00	8.10340E 00	-5.10000E 00	3.05347E 00	-1.9[illegible]E-01
4	1.1[illegible] 01	-4.57500E-02	-9.78113E-01	-6.31437E 00	6.36403E 00	-4.70000E 00	1.61437E 00	6.4[illegible] 00
5	1.2[illegible] 01	-4.57500E-02	-2.54325E 00	-6.22692E 00	6.72441E 00	-5.60000E 00	1.14472E 00	6.671[illegible] 00
6	1.27[illegible] 01	-4.57500E-02	-5.06775E 00	-6.59753E 00	8.16331E 00	-5.50000E 00	1.29[illegible] 00	6.912[illegible] 00
7	1.31[illegible] 01	-4.57500E-02	-6.44467E 00	-7.54479E 00	9.92248E 00	-8.40000E 00	1.34470E 00	6.94[illegible] 00
8	1.35509E 01	-4.57500E-02	-7.26679E 00	-9.07515E 00	1.16337E 01	-7.30000E 00	1.39513E 00	6.95[illegible] 00
9	1.38590E 01	-4.57500E-02	-7.79528E 00	-9.85034E 00	1.25617E 01	-9.50000E 00	3.50364E-01	6.9526[illegible] 00
10	1.41730E 01	-4.57500E-02	-9.54462E 00	-1.08277E 01	1.37932E 01	-1.1[illegible]E 01	-1.77442E-01	6.95[illegible] 00
11	1.45700E 01	-4.57500E-02	-9.74676E 00	-1.25701E 01	1.56612E 01	-1.25000E 01	7.09913E-01	6.9[illegible] 00
12	1.50367E 01	-4.57500E-02	-9.57400E 00	-1.46701E 01	1.74711E 01	-1.39000E 01	7.70720E-01	6.85[illegible] 00
13	1.54[illegible] 01	-4.57500E-02	-7.51691E 00	-1.70063E 01	1.76354E 01	-1.52000E 01	1.80633E 00	6.7848[illegible] 00
14	1.60[illegible] 01	-4.57500E-02	-8.20451E 00	-1.98051E 01	2.14373E 01	-1.65000E 01	3.30511E 00	6.6759[illegible] 00
15	1.65000E 01	-4.57500E-02	-6.49065E 00	-2.18525E 01	2.27723E 01	-1.77000E 01	4.15274E 00	6.5618[illegible] 00
16	1.71[illegible] 01	-4.57500E-02	-3.97744E 00	-2.41346E 01	2.44600E 01	-1.90000E 01	5.13436E 00	6.39[illegible] 00
17	1.76560E 01	-4.57500E-02	-7.20469E-01	-2.51796E 01	2.51795E 01	-2.01000E 01	5.01757E 00	6.311[illegible] 00
18	1.83190E 01	-4.57500E-02	3.01460E 00	-2.53225E 01	2.55013E 01	-2.03000E 01	5.13744E 00	-1.[illegible]E-01
19	1.84300E 01	-4.57500E-02	5.74490E 00	-2.42513E 01	2.49135E 01	-1.93000E 01	4.96131E 00	-2.[illegible]E-01
20	1.93[illegible] 01	-4.57500E-02	7.79346E 00	-2.35167E 01	2.46779E 01	-1.79000E 01	5.51600E 00	-2.71[illegible]E-01
21	1.97600E 01	-4.57500E-02	9.67154E 00	-2.23156E 01	2.43240E 01	-1.65000E 01	5.61923E 00	-4.[illegible]E-01
22	2.02[illegible] 01	-4.57500E-02	1.18[illegible]E 01	-2.01357E 01	2.33707E 01	-1.44000E 01	5.73573E 00	-5.3[illegible]E-01
23	2.05[illegible] 01	-4.57500E-02	1.29756E 01	-1.73440E 01	2.17493E 01	-1.25000E 01	4.89000E 00	-6.44[illegible]E-01
24	2.15000E 01	-4.57500E-02	1.27116E 01	-1.45641E 01	1.94121E 01	-1.17000E 01	3.72[illegible] 00	-7.2074[illegible]E-01
25	2.21000E 01	-4.57500E-02	1.17873E 01	-1.29251E 01	1.76260E 01	-5.10000E 00	3.82506E 00	-7.477[illegible]E-01
26	2.28[illegible] 01	-4.57500E-02	1.12779E 01	-1.17559E 01	1.62900E 01	-7.60000E 00	5.15378E 00	-7.644[illegible]E-01
27	2.34199E 01	-4.57500E-02	1.08418E 01	-1.05064E 01	1.51805E 01	-6.70000E 00	3.84[illegible] 00	-7.95[illegible]E-01
28	2.40305E 01	-4.57500E-02	9.53868E 00	-9.60257E 00	1.35350E 01	-5.70000E 00	3.50252E 00	-7.82[illegible]E-01
29	2.45[illegible] 01	-4.57500E-02	8.40048E 00	-9.67318E 00	1.28117E 01	-5.50000E 00	4.17318E 00	-7.15[illegible]E-01
30	2.50430E 01	-4.57500E-02	7.37719E 00	-1.05099E 01	1.28406E 01	-6.40000E 00	4.10[illegible] 00	-6.[illegible]E-01
31	2.55700E 01	-4.57500E-02	7.41634E 00	-1.18838E 01	1.40001E 01	-7.00000E 00	4.89381E 00	-5.57[illegible]E-01
32	2.59[illegible] 01	-4.57500E-02	8.09485E 00	-1.27907E 01	1.53064E 01	-7.10000E 00	5.67171E 00	-5.37[illegible]E-01
33	2.6[illegible] 01	-4.57500E-02	9.70479E 00	-1.32518E 01	1.60025E 01	-7.00000E 00	6.54155E 00	-6.23[illegible]E-01
34	2.70[illegible] 01	-4.57500E-02	1.10144E 01	-1.29555E 01	1.70702E 01	-6.20000E 00	6.75522E 00	-7.43[illegible]E-01
35	2.77[illegible] 01	-4.57500E-02	1.30454E 01	-1.01332E 01	1.65186E 01	-4.80000E 00	5.33318E 00	-8.103[illegible]E-01
36	2.83550E 01	-4.57500E-02	1.24258E 01	-8.94769E 00	1.53118E 01	-3.60000E 00	5.14769E 00	-8.46[illegible]E-01
37	2.87[illegible] 01	-4.57500E-02	1.20831E 01	-8.36733E 00	1.47077E 01	-2.90000E 00	3.40735E 00	-8.82[illegible]E-01
38	2.96[illegible] 01	-4.57500E-02	1.19[illegible]E 01	-8.02076E 00	1.44249E 01	-2.10000E 00	3.32[illegible] 00	-9.51[illegible]E-01
39	3.07200E 01	-4.57500E-02	1.21035E 01	-7.72536E 00	1.43588E 01	-1.80000E 00	5.52530E 00	-1.00771E 00
40	3.08500E 01	-4.57500E-02	1.24380E 01	-7.37340E 00	1.44600E 01	-1.50000E 00	6.07340E 00	-1.03571E 00

TOTAL RUNNING TIME FOR THIS JOB WAS 50.500

TABLE 7.

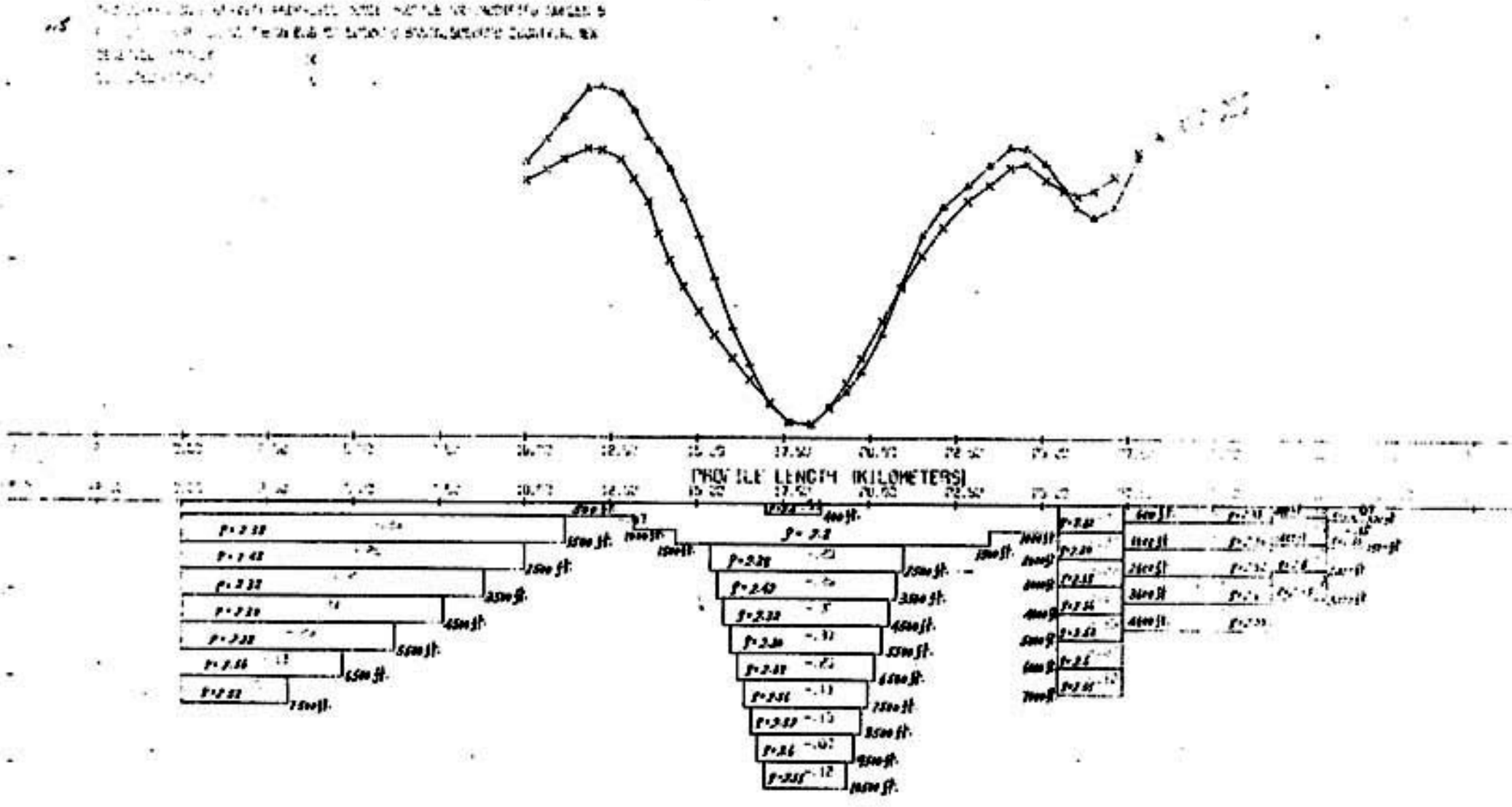

Figure 12. Observed and computed gravity curves, from data table 6.

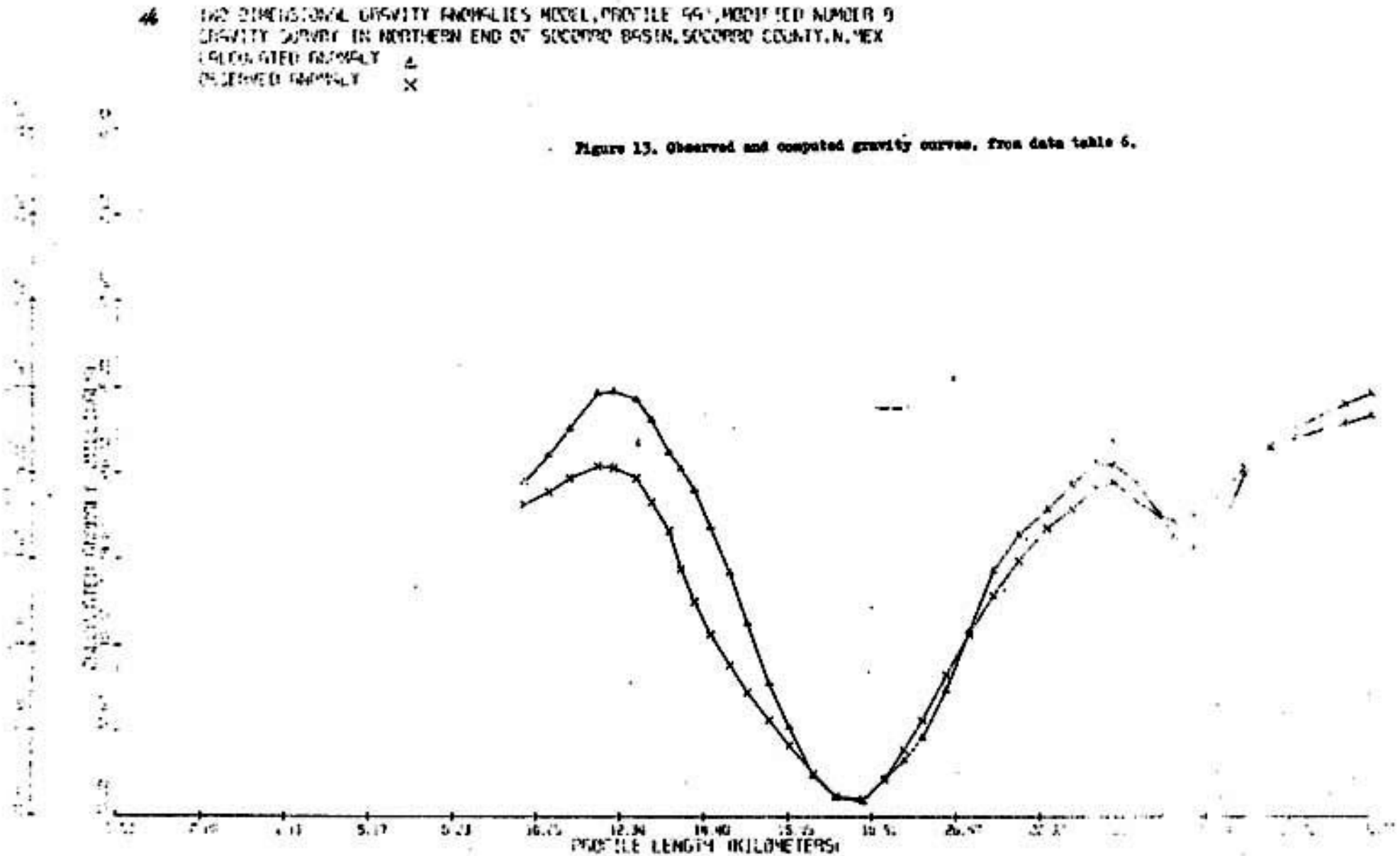

Figure 13. Observed and computed gravity curves, from data table 6.

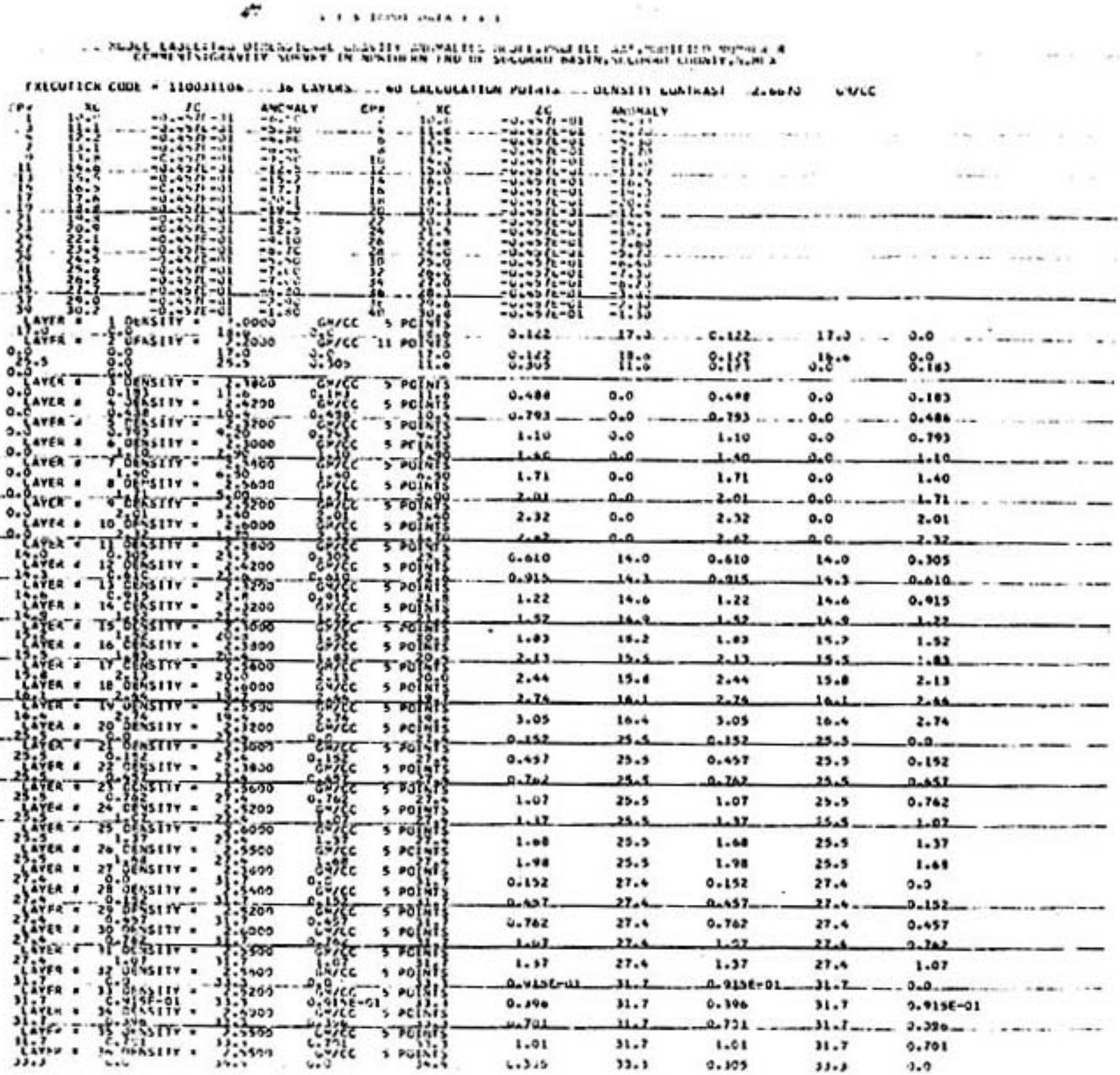

TABLE 8.

TWO-DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE AA', MODIFIED NUMBER 8
GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N.MEX.

DENSITY CONTRAST 2.6670 GM/CC

K	CALCULATION POINTS X COORD	Z COORD	GRAVITY ANOMALIES (MILLIGALS) HORIZONTAL	VERTICAL	TOTAL	OBSERVED	DEVIATION	[illegible]
1	1.000000E 01	-4.575000E-02	7.357756E-01	-1.258106E 01	1.260256E 01	-6.500000E 00	6.080995E 00	[illegible]
2	1.062500E 01	-4.575000E-02	-3.721300E-02	-1.137500E 01	1.132500E 01	-5.900000E 00	5.475561E 00	[illegible]
3	1.115000E 01	-4.575000E-02	-1.675060E 00	-1.061600E 01	1.066470E 01	-5.300000E 00	5.309995E 00	[illegible]
4	1.140000E 01	-4.575000E-02	-2.760900E 00	-1.008500E 01	1.045120E 01	-4.700000E 00	5.386495E 00	[illegible]
5	1.226000E 01	-4.575000E-02	-3.531270E 00	-1.006110E 01	1.080190E 01	-4.800000E 00	5.261150E 00	[illegible]
6	1.274000E 01	-4.575000E-02	-5.656550E 00	-1.055600E 01	1.192490E 01	-5.300000E 00	5.196775E 00	[illegible]
7	1.313600E 01	-4.575000E-02	-6.874590E 00	-1.110320E 01	1.305870E 01	-6.400000E 00	4.705770E 00	[illegible]
8	1.355000E 01	-4.575000E-02	-9.331610E 00	-1.226550E 01	1.482700E 01	-7.700000E 00	4.565540E 00	[illegible]
9	1.385200E 01	-4.575000E-02	-9.295480E 00	-1.360030E 01	1.647280E 01	-9.500000E 00	4.100760E 00	[illegible]
10	1.417000E 01	-4.575000E-02	-9.825050E 00	-1.548530E 01	1.833920E 01	-1.100000E 01	4.485330E 00	[illegible]
11	1.457000E 01	-4.575000E-02	-9.626090E 00	-1.781710E 01	2.025120E 01	-1.250000E 01	5.217140E 00	[illegible]
12	1.551000E 01	-4.575000E-02	-8.713450E 00	-2.012370E 01	2.192910E 01	-1.390000E 01	6.221570E 00	[illegible]
13	1.597000E 01	-4.575000E-02	-7.476910E 00	-2.192290E 01	2.316740E 01	-1.520000E 01	6.722910E 00	[illegible]
14	1.653000E 01	-4.575000E-02	-5.595600E 00	-2.357840E 01	2.423400E 01	-1.650000E 01	7.076550E 00	[illegible]
15	1.670000E 01	-4.575000E-02	-3.357800E 00	-2.470220E 01	2.494240E 01	-1.770000E 01	7.002210E 00	[illegible]
16	1.716000E 01	-4.575000E-02	-1.669390E 00	-2.621810E 01	2.627240E 01	-1.900000E 01	7.218060E 00	[illegible]
17	1.765000E 01	-4.575000E-02	1.163420E 00	-2.677900E 01	2.680420E 01	-2.010000E 01	6.676470E 00	[illegible]
18	1.819000E 01	-4.575000E-02	4.145720E 00	-2.675550E 01	2.710560E 01	-2.020000E 01	6.555950E 00	[illegible]
19	1.849000E 01	-4.575000E-02	6.632790E 00	-2.568770E 01	2.653100E 01	-1.930000E 01	6.382760E 00	[illegible]
20	1.932000E 01	-4.575000E-02	8.200640E 00	-2.505010E 01	2.630300E 01	-1.790000E 01	7.150090E 00	[illegible]
21	1.970000E 01	-4.575000E-02	9.846190E 00	-2.429640E 01	2.621840E 01	-1.650000E 01	7.796460E 00	[illegible]
22	2.035600E 01	-4.575000E-02	1.126540E 01	-2.290590E 01	2.574850E 01	-1.440000E 01	8.505480E 00	[illegible]
23	2.096400E 01	-4.575000E-02	1.355010E 01	-2.121000E 01	2.512480E 01	-1.250000E 01	8.710040E 00	[illegible]
24	2.150000E 01	-4.575000E-02	1.467080E 01	-1.902780E 01	2.403240E 01	-1.370000E 01	8.323840E 00	[illegible]
25	2.219000E 01	-4.575000E-02	1.523960E 01	-1.673060E 01	2.260490E 01	-9.100000E 00	7.635640E 00	[illegible]
26	2.290000E 01	-4.575000E-02	1.527470E 01	-1.417900E 01	2.085400E 01	-7.600000E 00	6.579610E 00	[illegible]
27	2.343000E 01	-4.575000E-02	1.474190E 01	-1.201710E 01	1.901930E 01	-6.700000E 00	5.317140E 00	[illegible]
28	2.401000E 01	-4.575000E-02	1.316080E 01	-1.044290E 01	1.680050E 01	-5.700000E 00	4.742550E 00	[illegible]
29	2.450000E 01	-4.575000E-02	1.183070E 01	-1.015460E 01	1.557110E 01	-5.500000E 00	4.654640E 00	[illegible]
30	2.509000E 01	-4.575000E-02	1.061110E 01	-1.061420E 01	1.500070E 01	-6.400000E 00	4.216740E 00	[illegible]
31	2.557000E 01	-4.575000E-02	1.016310E 01	-1.159720E 01	1.550610E 01	-7.000000E 00	4.597170E 00	[illegible]
32	2.597000E 01	-4.575000E-02	1.075420E 01	-1.245130E 01	1.645520E 01	-7.300000E 00	5.151310E 00	[illegible]
33	2.666000E 01	-4.575000E-02	1.195710E 01	-1.285050E 01	1.755300E 01	-7.000000E 00	5.850570E 00	[illegible]
34	2.705000E 01	-4.575000E-02	1.361310E 01	-1.229150E 01	1.849010E 01	-6.200000E 00	6.041050E 00	[illegible]
35	2.774000E 01	-4.575000E-02	1.450060E 01	-9.585250E 00	1.738230E 01	-4.800000E 00	4.785250E 00	[illegible]
36	2.845000E 01	-4.575000E-02	1.372240E 01	-8.555100E 00	1.617070E 01	-3.800000E 00	4.755130E 00	[illegible]
37	2.920000E 01	-4.575000E-02	1.328920E 01	-8.070130E 00	1.554760E 01	-2.900000E 00	5.170130E 00	[illegible]
38	2.967000E 01	-4.575000E-02	1.311260E 01	-7.734440E 00	1.522630E 01	-2.300000E 00	5.434440E 00	[illegible]
39	3.022000E 01	-4.575000E-02	1.314290E 01	-7.463170E 00	1.511390E 01	-1.800000E 00	5.663170E 00	[illegible]
40	3.085000E 01	-4.575000E-02	1.317820E 01	-7.126320E 00	1.515790E 01	-1.300000E 00	5.826320E 00	[illegible]

TOTAL RUNNING TIME FOR THIS JOB WAS 40.066

TABLE 9.

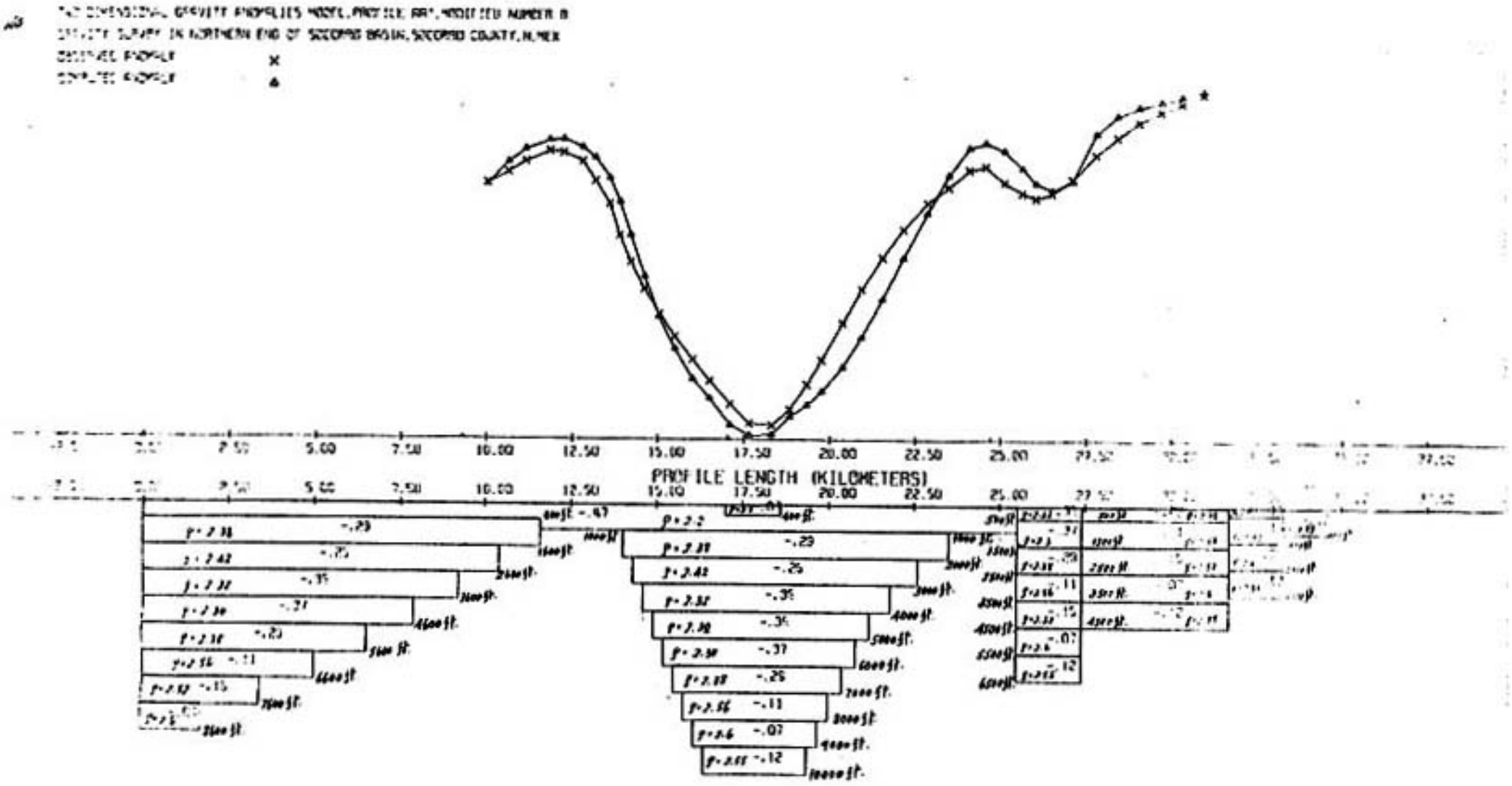

Figure 14. Observed and computed gravity curves, from data table 6.

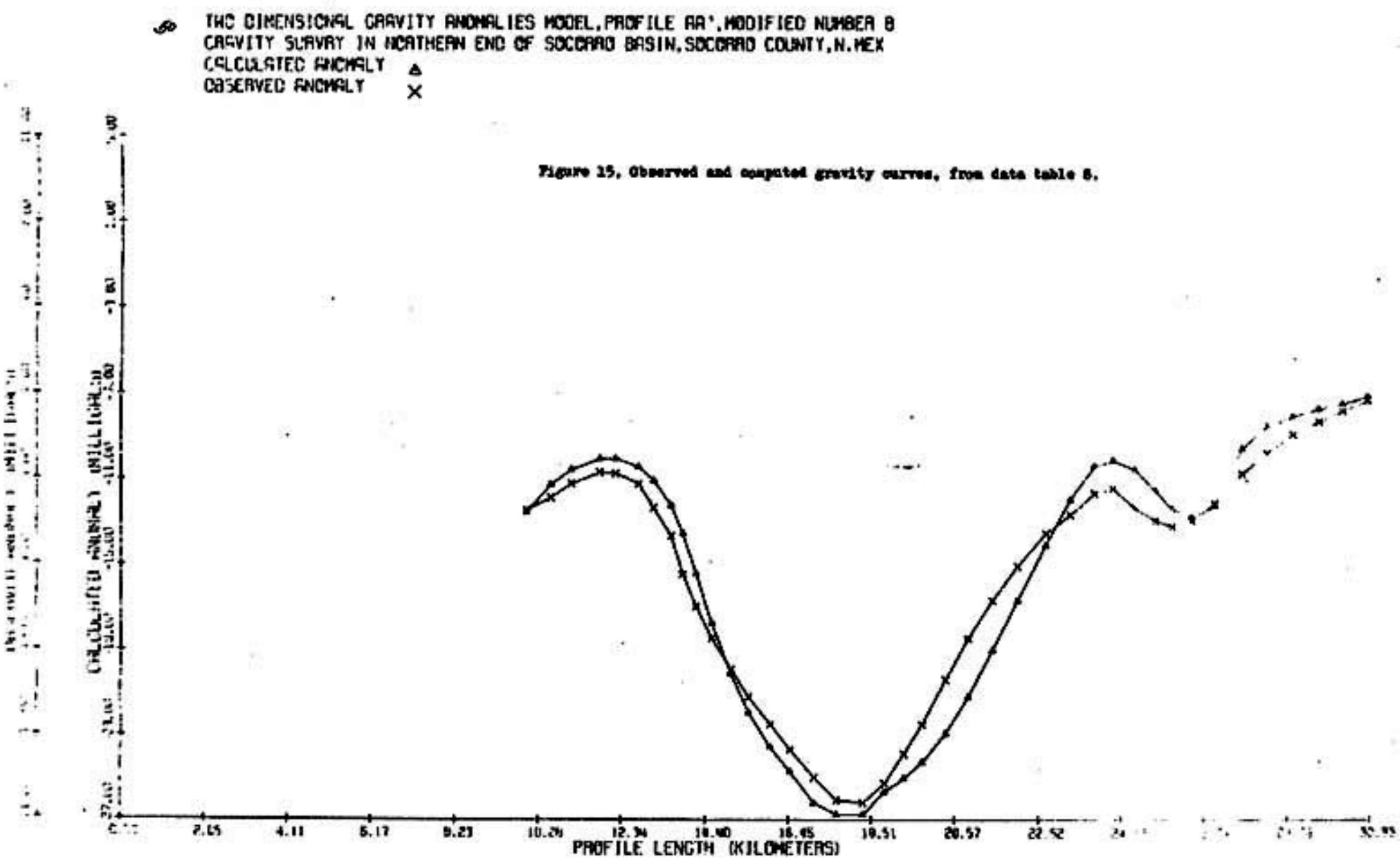

Figure 15. Observed and computed gravity curves, from data table 8.

MODEL [illegible] DIMENSIONAL GRAVITY ANOMALIES [illegible]
COMMENTS: GRAVITY SURVEY [illegible] NORTHERN END OF [illegible] COUNTY, N.M.

EXECUTION CODE = [illegible] 36 LAYERS 40 CALCULATION POINTS DENSITY CONTRAST 2.6670 GM/CC

CP#	XC	ZC	ANOMALY	CP#	XC	ZC	ANOMALY
1	10.0	-0.457E-01	-6.50	2	10.6	-0.457E-01	[illegible]
3	11.1	-0.457E-01	-5.50	4	11.6	-0.457E-01	-4.70
5	12.2	-0.457E-01	-4.50	6	12.8	-0.457E-01	-5.60
7	13.1	-0.457E-01	-6.20	8	13.5	-0.457E-01	-7.70
9	13.8	-0.457E-01	-9.50	10	14.2	-0.457E-01	-11.0
11	14.6	-0.457E-01	-12.5	12	15.0	-0.457E-01	-13.9
13	15.5	-0.457E-01	-15.2	14	16.0	-0.457E-01	-16.5
15	16.5	-0.457E-01	-17.7	16	17.1	-0.457E-01	-19.0
17	17.6	-0.457E-01	-20.1	18	18.1	-0.457E-01	-20.2
19	18.8	-0.457E-01	-19.3	20	19.3	-0.457E-01	-17.9
21	19.8	-0.457E-01	-14.2	22	20.3	-0.457E-01	-14.4
23	20.9	-0.457E-01	-12.5	24	21.5	-0.457E-01	-10.7
25	22.1	-0.457E-01	-7.10	26	22.8	-0.457E-01	-7.60
27	23.4	-0.457E-01	-4.70	28	24.0	-0.457E-01	-4.70
29	24.5	-0.457E-01	-5.30	30	25.0	-0.457E-01	-6.50
31	25.6	-0.457E-01	-7.20	32	26.0	-0.457E-01	-7.30
33	26.3	-0.457E-01	-7.00	34	27.0	-0.457E-01	-6.20
35	27.7	-0.457E-01	-4.60	36	28.3	-0.457E-01	-3.50
37	29.0	-0.457E-01	-2.40	38	29.6	-0.457E-01	-2.10
39	30.7	-0.457E-01	-1.80	40	30.8	-0.457E-01	-1.30

LAYER #	1 DENSITY =	2.0000	GM/CC	5 POINTS	0.122	17.0	0.122	17.0	0.0
17.0	0.0	18.6	0.0	18.6					
LAYER #	2 DENSITY =	2.2000	GM/CC	15 POINTS	0.122	18.6	0.122	18.6	0.0
0.0	0.0	17.0	0.0	17.0	0.305	24.5	0.457	13.0	0.457
25.5	0.0	25.5	0.305	24.5	0.183	0.0	0.183	0.0	0.0
13.0	0.305	11.5	0.305	11.5					
LAYER #	3 DENSITY =	2.3300	GM/CC	5 POINTS	0.488	0.0	0.488	0.0	0.183
0.0	0.183	11.5	0.183	11.5					
LAYER #	4 DENSITY =	2.4200	GM/CC	5 POINTS	0.793	0.0	0.793	0.0	0.488
0.0	0.488	10.3	0.488	10.3					
LAYER #	5 DENSITY =	2.3200	GM/CC	5 POINTS	1.10	0.0	1.10	0.0	0.793
0.0	0.793	9.20	0.793	9.20					
LAYER #	6 DENSITY =	2.3000	GM/CC	5 POINTS	1.40	0.0	1.40	0.0	1.10
0.0	1.10	7.90	1.10	7.90					
LAYER #	7 DENSITY =	2.3900	GM/CC	5 POINTS	1.71	0.0	1.71	0.0	1.40
0.0	1.40	6.50	1.40	6.50					
LAYER #	8 DENSITY =	2.5600	GM/CC	5 POINTS	2.01	0.0	2.01	0.0	1.71
0.0	1.71	5.00	1.71	5.00					
LAYER #	9 DENSITY =	2.5200	GM/CC	5 POINTS	2.32	0.0	2.32	0.0	2.01
0.0	2.01	3.40	2.01	3.40					
LAYER #	10 DENSITY =	2.6000	GM/CC	5 POINTS	2.62	0.0	2.62	0.0	2.32
0.0	2.32	1.70	2.32	1.70					
LAYER #	11 DENSITY =	2.3900	GM/CC	5 POINTS	0.762	14.2	0.762	14.2	0.457
14.2	0.457	21.8	0.457	21.8					
LAYER #	12 DENSITY =	2.4200	GM/CC	5 POINTS	1.07	14.5	1.07	14.5	0.762
14.5	0.762	21.4	0.762	21.4					
LAYER #	13 DENSITY =	2.3200	GM/CC	5 POINTS	1.37	14.9	1.37	14.9	1.07
14.9	1.07	20.8	1.07	20.8					
LAYER #	14 DENSITY =	2.3000	GM/CC	5 POINTS	1.68	15.4	1.68	15.4	1.37
15.4	1.37	20.3	1.37	20.3					
LAYER #	15 DENSITY =	2.3800	GM/CC	5 POINTS	1.98	15.8	1.98	15.8	1.68
15.8	1.68	20.0	1.68	20.0					
LAYER #	16 DENSITY =	2.5600	GM/CC	5 POINTS	2.29	16.2	2.29	16.2	1.98
16.2	1.98	19.7	1.98	19.7					
LAYER #	17 DENSITY =	2.5200	GM/CC	5 POINTS	2.59	16.5	2.59	16.5	2.29
16.5	2.29	19.4	2.29	19.4					
LAYER #	18 DENSITY =	2.6000	GM/CC	5 POINTS	2.90	16.8	2.90	16.8	2.59
16.8	2.59	19.2	2.59	19.2					
LAYER #	19 DENSITY =	2.5500	GM/CC	5 POINTS	3.20	17.1	3.20	17.1	2.90
17.1	2.90	19.0	2.90	19.0					
LAYER #	20 DENSITY =	2.3200	GM/CC	5 POINTS	0.152	25.5	0.152	25.5	0.0
25.5	0.0	27.4	0.0	27.4					
LAYER #	21 DENSITY =	2.3000	GM/CC	5 POINTS	0.457	25.5	0.457	25.5	0.152
25.5	0.152	27.4	0.152	27.4					
LAYER #	22 DENSITY =	2.3800	GM/CC	5 POINTS	0.762	25.5	0.762	25.5	0.457
25.5	0.457	27.4	0.457	27.4					
LAYER #	23 DENSITY =	2.5600	GM/CC	5 POINTS	1.07	25.5	1.07	25.5	0.762
25.5	0.762	27.4	0.762	27.4					
LAYER #	24 DENSITY =	2.5200	GM/CC	5 POINTS	1.37	25.5	1.37	25.5	1.07
25.5	1.07	27.4	1.07	27.4					
LAYER #	25 DENSITY =	2.6000	GM/CC	5 POINTS	1.68	25.5	1.68	25.5	1.37
25.5	1.37	27.4	1.37	27.4					
LAYER #	26 DENSITY =	2.5500	GM/CC	5 POINTS	1.98	25.5	1.98	25.5	1.68
25.5	1.68	27.4	1.68	27.4					
LAYER #	27 DENSITY =	2.3800	GM/CC	5 POINTS	0.168	27.4	0.168	27.4	0.0
27.4	0.0	31.7	0.0	31.7					
LAYER #	28 DENSITY =	2.5600	GM/CC	5 POINTS	0.473	27.4	0.473	27.4	0.168
27.4	0.168	31.7	0.168	31.7					
LAYER #	29 DENSITY =	2.5200	GM/CC	5 POINTS	0.778	27.4	0.778	27.4	0.473
27.4	0.473	31.7	0.473	31.7					
LAYER #	30 DENSITY =	2.6000	GM/CC	5 POINTS	1.08	27.4	1.08	27.4	0.778
27.4	0.778	31.7	0.778	31.7					
LAYER #	31 DENSITY =	2.5500	GM/CC	5 POINTS	1.39	27.4	1.39	27.4	1.08
27.4	1.08	31.7	1.08	31.7					
LAYER #	32 DENSITY =	2.5400	GM/CC	5 POINTS	0.915E-01	31.7	0.915E-01	31.7	0.0
31.7	0.0	33.3	0.0	33.3					
LAYER #	33 DENSITY =	2.5200	GM/CC	5 POINTS	0.396	31.7	0.396	31.7	0.915E-01
31.7	0.915E-01	33.3	0.915E-01	33.3					
LAYER #	34 DENSITY =	2.6000	GM/CC	5 POINTS	0.701	31.7	0.701	31.7	0.396
31.7	0.396	33.5	0.396	33.5					
LAYER #	35 DENSITY =	2.5500	GM/CC	5 POINTS	1.01	31.7	1.01	31.7	0.701
31.7	0.701	33.9	0.701	33.9					
LAYER #	36 DENSITY =	2.5500	GM/CC	5 POINTS	[illegible]	33.3	[illegible]	33.3	[illegible]
33.3	[illegible]	34.4	[illegible]	34.4					

LAYER # 17 ERROR # 1 POINT # [illegible] 1.65[illegible] 01 AFTER 1 CYCLE(S)
LAYER # 17 ERROR # 2 POINT # [illegible] 1.65[illegible] 01 AFTER 1 CYCLE(S)
LAYER # [illegible] ERROR # [illegible] POINT # [illegible] 1.7[illegible] 01 AFTER 1 CYCLE(S)
LAYER # [illegible] ERROR # [illegible] POINT # [illegible] 1.7[illegible] 01 AFTER 1 CYCLE(S)
LAYER # [illegible] ERROR # [illegible] POINT # [illegible] 2.[illegible] 01 AFTER 1 CYCLE(S)
LAYER # 2 ERROR # 2 POINT # [illegible] 2.45[illegible] 01 AFTER 1 CYCLE(S)

TABLE 10.

TWO DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE AA', MODIFIED NUMBER 8
GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N.MEX

DENSITY CONTRAST 2.4670 GM/CC

K	CALCULATION POINTS X COORD	Z COORD	GRAVITY ANOMALIES (MILLIGALS) HORIZONTAL	VERTICAL	TOTAL	OBSERVED	DEVIATION	SERIES
1	1.00000E 01	-4.57500E-02	1.16654E 00	-1.22792E 01	1.23245E 01	-6.50000E 00	5.77245E 00	[illegible]
2	1.06000E 01	-4.57500E-02	2.76441E-01	-1.09775E 01	1.09741E 01	-5.90000E 00	5.07500E 00	[illegible]
3	1.11600E 01	-4.57500E-02	-8.16450E-01	-1.02764E 01	1.03087E 01	-5.30000E 00	4.97636E 00	[illegible]
4	1.18600E 01	-4.57500E-02	-2.65117E 00	-9.76937E 00	1.01227E 01	-4.70000E 00	5.06937E 00	[illegible]
5	1.22000E 01	-4.57500E-02	-3.52449E 00	-9.82550E 00	1.05604E 01	-4.80000E 00	5.02550E 00	[illegible]
6	1.27600E 01	-4.57500E-02	-5.47360E 00	-1.06213E 01	1.21390E 01	-5.10000E 00	5.37440E 00	[illegible]
7	1.31300E 01	-4.57500E-02	-6.18950E 00	-1.18015E 01	1.36658E 01	-6.40000E 00	5.40193E 00	[illegible]
8	1.35500E 01	-4.57500E-02	-7.56477E 00	-1.31572E 01	1.51694E 01	-7.70000E 00	5.45716E 00	[illegible]
9	1.38500E 01	-4.57500E-02	-8.00277E 00	-1.41977E 01	1.62952E 01	-9.50000E 00	4.69260E 00	[illegible]
10	1.41700E 01	-4.57500E-02	-8.34606E 00	-1.55551E 01	1.76532E 01	-1.11000E 01	4.55217E 00	[illegible]
11	1.45700E 01	-4.57500E-02	-8.25743E 00	-1.74636E 01	1.93174E 01	-1.25000E 01	4.76361E 00	[illegible]
12	1.50300E 01	-4.57500E-02	-7.52445E 00	-1.94897E 01	2.08901E 01	-1.39000E 01	5.56817E 00	[illegible]
13	1.56700E 01	-4.57500E-02	-6.53136E 00	-2.11427E 01	2.20987E 01	-1.52000E 01	5.96215E 00	[illegible]
14	1.60000E 01	-4.57500E-02	-4.79235E 00	-2.27444E 01	2.32477E 01	-1.65000E 01	6.24434E 00	[illegible]
15	1.65500E 01	-4.57500E-02	-3.09583E 00	-2.38662E 01	2.46080E 01	-1.77000E 01	6.18873E 00	[illegible]
16	1.71500E 01	-4.57500E-02	-1.01764E 00	-2.54333E 01	2.54533E 01	-1.90000E 01	6.43315E 00	[illegible]
17	1.76500E 01	-4.57500E-02	1.47756E 00	-2.59947E 01	2.60517E 01	-2.01000E 01	5.48472E 00	[illegible]
18	1.81000E 01	-4.57500E-02	5.14511E 00	-2.58667E 01	2.63734E 01	-2.05000E 01	[illegible]	[illegible]
19	1.88100E 01	-4.57500E-02	7.50555E 00	-2.46136E 01	2.57566E 01	-1.93000E 01	5.33670E 00	[illegible]
20	1.91200E 01	-4.57500E-02	9.16738E 00	-2.37765E 01	2.54849E 01	-1.79000E 01	5.67603E 00	[illegible]
21	1.97400E 01	-4.57500E-02	1.07230E 01	-2.27624E 01	2.51620E 01	-1.65000E 01	6.26294E 00	[illegible]
22	2.03500E 01	-4.57500E-02	1.25346E 01	-2.09761E 01	2.44350E 01	-1.44000E 01	6.57614E 00	[illegible]
23	2.09550E 01	-4.57500E-02	1.37760E 01	-1.89419E 01	2.34244E 01	-1.23000E 01	6.34309E 00	[illegible]
24	2.15050E 01	-4.57500E-02	1.44733E 01	-1.64395E 01	2.19024E 01	-1.07000E 01	5.71967E 00	[illegible]
25	2.21500E 01	-4.57500E-02	1.49833E 01	-1.39979E 01	1.98505E 01	-9.10000E 00	4.65794E 00	[illegible]
26	2.28300E 01	-4.57500E-02	1.49136E 01	-1.23761E 01	1.70079E 01	-7.40000E 00	4.77613E 00	[illegible]
27	2.34300E 01	-4.57500E-02	1.21017E 01	-1.16640E 01	1.68077E 01	-6.70000E 00	4.95295E 00	[illegible]
28	2.40100E 01	-4.57500E-02	1.16404E 01	-1.11994E 01	1.61551E 01	-5.70000E 00	5.49593E 00	[illegible]
29	2.45600E 01	-4.57500E-02	1.12858E 01	-1.06650E 01	1.55141E 01	-5.50000E 00	5.14504E 00	[illegible]
30	2.53400E 01	-4.57500E-02	1.01200E 01	-1.04950E 01	1.45800E 01	-6.40000E 00	4.09497E 00	[illegible]
31	2.55700E 01	-4.57500E-02	9.78532E 00	-1.13754E 01	1.50051E 01	-7.00000E 00	4.37534E 00	[illegible]
32	2.59800E 01	-4.57500E-02	1.01736E 01	-1.22299E 01	1.59755E 01	-7.50000E 00	4.42927E 00	[illegible]
33	2.66600E 01	-4.57500E-02	1.13031E 01	-1.26507E 01	1.69946E 01	-7.00000E 00	5.05062E 00	[illegible]
34	2.70500E 01	-4.57500E-02	1.31447E 01	-1.17134E 01	1.76096E 01	-6.20000E 00	5.93441E 00	[illegible]
35	2.77300E 01	-4.57500E-02	1.38632E 01	-9.53850E 00	1.68277E 01	-4.80000E 00	4.73850E 00	[illegible]
36	2.83500E 01	-4.57500E-02	1.31556E 01	-8.54865E 00	1.56091E 01	-3.80000E 00	4.74865E 00	[illegible]
37	2.87900E 01	-4.57500E-02	1.27818E 01	-8.08836E 00	1.51260E 01	-2.90000E 00	5.18876E 00	[illegible]
38	2.96700E 01	-4.57500E-02	1.26009E 01	-7.77453E 00	1.48574E 01	-2.30000E 00	5.47453E 00	[illegible]
39	3.02700E 01	-4.57500E-02	1.27470E 01	-7.50845E 00	1.47897E 01	-1.80000E 00	5.70845E 00	[illegible]
40	3.08500E 01	-4.57500E-02	1.30330E 01	-7.17479E 00	1.48779E 01	-1.30000E 00	5.87479E 00	[illegible]

TOTAL RUNNING TIME FOR THIS JOB WAS 39.563

TABLE 11.

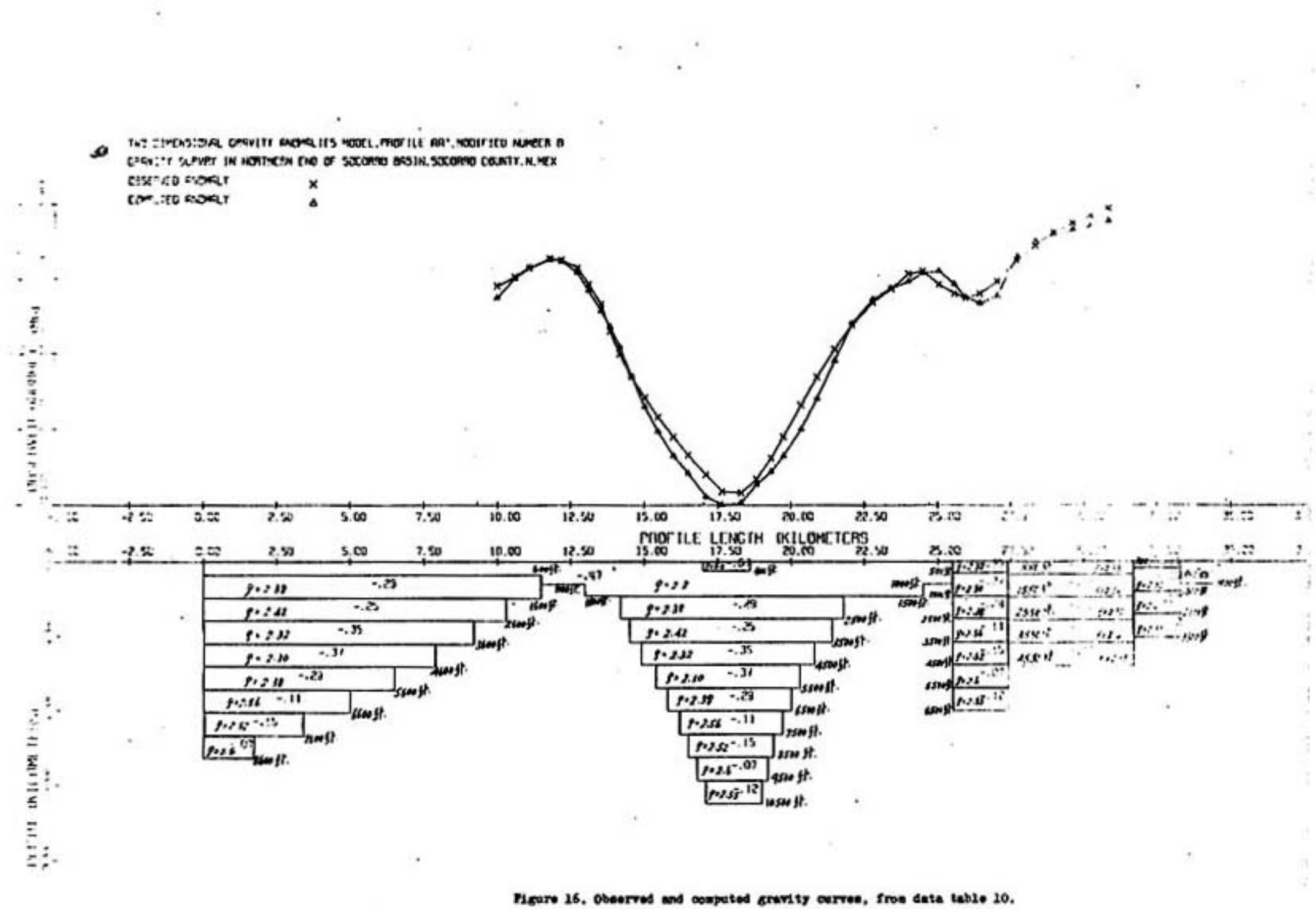

Figure 16. Observed and computed gravity curves, from data table 10.

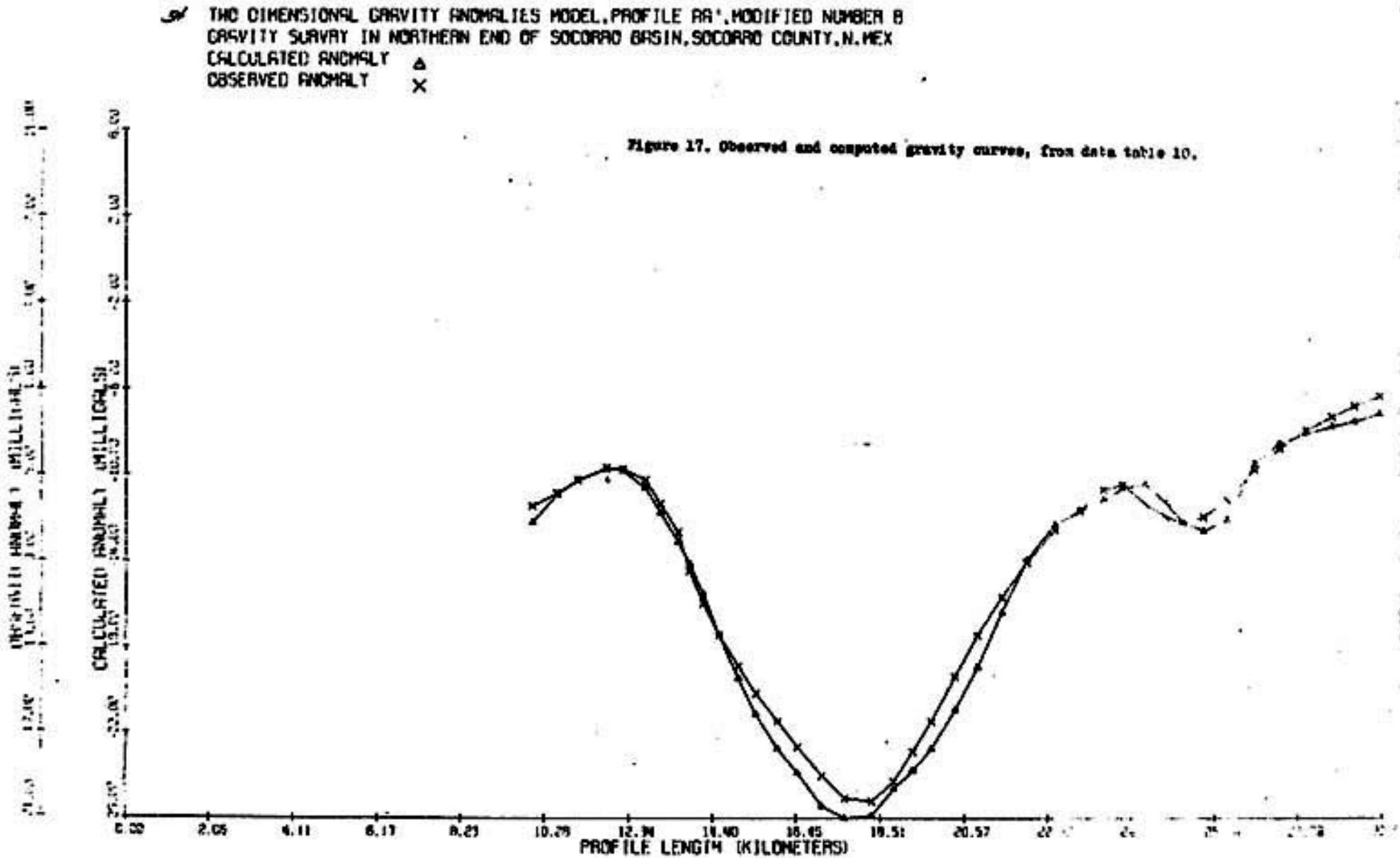

Figure 17. Observed and computed gravity curves, from data table 10.

[illegible]

[illegible]
COMMENTS: GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N.M. X

EXECUTION CODE = [illegible]   34 LAYERS   40 CALCULATION POINTS   DENSITY CONTRAST   2.6670   GM/CC

CP#	XC	ZC	ANOMALY	CP#	XC	ZC	ANOMALY
1	10.0	-0.457E-01	-6.50	2	10.6	-0.457E-01	[illegible]
3	11.1	-0.457E-01	-5.30	4	11.4	-0.457E-01	-4.70
5	12.2	-0.457E-01	-4.80	6	12.8	-0.457E-01	-5.40
7	13.1	-0.457E-01	-6.40	8	13.5	-0.457E-01	-7.70
9	13.8	-0.457E-01	-9.50	10	14.2	-0.457E-01	-11.3
11	14.6	-0.457E-01	-12.5	12	15.0	-0.457E-01	-13.9
13	15.5	-0.457E-01	-15.2	14	16.0	-0.457E-01	-16.5
15	16.5	-0.457E-01	-17.7	16	17.1	-0.457E-01	-19.5
17	17.6	-0.457E-01	-20.1	18	18.3	-0.457E-01	-20.2
19	18.8	-0.457E-01	-19.1	20	19.1	-0.457E-01	-17.3
21	19.8	-0.457E-01	-16.5	22	20.2	-0.457E-01	-14.4
23	20.4	-0.457E-01	-12.5	24	21.3	-0.457E-01	-10.7
25	22.1	-0.457E-01	-9.10	26	22.8	-0.457E-01	-7.60
27	23.5	-0.457E-01	-6.70	28	24.0	-0.457E-01	-5.70
29	24.5	-0.457E-01	-5.90	30	25.0	-0.457E-01	-6.40
31	25.6	-0.457E-01	-7.00	32	26.0	-0.457E-01	-7.30
33	26.5	-0.457E-01	-7.00	34	27.0	-0.457E-01	-6.20
35	27.7	-0.457E-01	-4.80	36	28.3	-0.457E-01	-3.30
37	29.0	-0.457E-01	-2.30	38	29.6	-0.457E-01	-2.10
39	30.2	-0.457E-01	-1.80	40	30.8	-0.457E-01	-1.30

```
LAYER #  1 DENSITY =  2.2000  GM/CC  11 POINTS
0.0   0.0    25.3  0.1    25.3  0.305  24.4  0.305  24.4  3.457
13.0  0.457  13.0  0.305  11.5  0.305  11.5  3.183  0.0   3.183
0.0   0.0
LAYER #  2 DENSITY =  2.3500  GM/CC  5 POINTS
0.0   0.183  11.5  0.183  11.5  0.488  0.0   0.488  0.0   0.183
LAYER #  3 DENSITY =  2.4200  GM/CC  5 POINTS
0.0   0.488  10.0  0.488  10.0  0.793  0.0   0.793  0.0   0.488
LAYER #  4 DENSITY =  2.3200  GM/CC  5 POINTS
0.0   0.793  8.50  0.793  8.50  1.10   0.0   1.10   0.0   0.793
LAYER #  5 DENSITY =  2.3[illegible]00  GM/CC  5 POINTS
0.0   1.10   6.00  1.10   6.00  1.40   0.0   1.40   0.0   1.10
LAYER #  6 DENSITY =  2.3600  GM/CC  5 POINTS
0.0   1.40   4.50  1.40   4.50  1.71   0.0   1.71   0.0   1.40
LAYER #  7 DENSITY =  2.5600  GM/CC  5 POINTS
0.0   1.71   3.00  1.71   3.00  2.01   0.0   2.01   0.0   1.71
LAYER #  8 DENSITY =  2.5200  GM/CC  5 POINTS
0.0   2.01   1.50  2.01   1.50  2.32   0.0   2.32   0.0   2.01
LAYER #  9 DENSITY =  2.3900  GM/CC  5 POINTS
14.2  0.457  21.8  0.457  21.8  0.762  14.2  0.762  14.2  0.457
LAYER # 10 DENSITY =  2.4200  GM/CC  5 POINTS
14.9  0.762  20.8  0.762  20.8  1.07   14.9  1.07   14.9  0.762
LAYER # 11 DENSITY =  2.3200  GM/CC  5 POINTS
15.2  1.07   [illegible]  1.07   [illegible]  1.37   15.2  1.37   15.2  1.07
LAYER # 12 DENSITY =  2.3000  GM/CC  5 POINTS
15.5  1.37   20.2  1.37   20.2  1.68   15.5  1.68   15.5  1.37
LAYER # 13 DENSITY =  2.3400  GM/CC  5 POINTS
15.9  1.68   19.9  1.68   19.9  1.98   15.9  1.98   15.9  1.68
LAYER # 14 DENSITY =  2.5500  GM/CC  5 POINTS
16.2  1.98   19.7  1.98   19.7  2.29   16.2  2.29   16.2  1.98
LAYER # 15 DENSITY =  2.5200  GM/CC  5 POINTS
16.5  2.29   19.7  2.29   19.7  2.59   16.5  2.59   16.5  2.29
LAYER # 16 DENSITY =  2.6000  GM/CC  5 POINTS
16.8  2.59   19.3  2.59   19.3  2.90   16.8  2.90   16.8  2.59
LAYER # 17 DENSITY =  2.5500  GM/CC  5 POINTS
17.1  2.90   19.1  2.90   19.1  3.20   17.1  3.20   17.1  2.90
LAYER # 18 DENSITY =  2.3200  GM/CC  5 POINTS
25.5  0.0    27.4  0.0    27.4  0.122  25.5  0.122  25.5  0.0
LAYER # 19 DENSITY =  2.3000  GM/CC  5 POINTS
25.5  0.122  27.4  0.122  27.4  0.427  25.5  0.427  25.5  0.122
LAYER # 20 DENSITY =  2.3800  GM/CC  5 POINTS
25.5  0.427  27.4  0.427  27.4  0.732  25.5  0.732  25.5  0.427
LAYER # 21 DENSITY =  2.4600  GM/CC  5 POINTS
25.5  0.732  27.4  0.732  27.4  1.04   25.5  1.04   25.5  0.732
LAYER # 22 DENSITY =  2.5200  GM/CC  5 POINTS
25.5  1.04   27.4  1.04   27.4  1.34   25.5  1.34   25.5  1.04
LAYER # 23 DENSITY =  2.6000  GM/CC  5 POINTS
25.5  1.34   27.4  1.34   27.4  1.65   25.5  1.65   25.5  1.34
LAYER # 24 DENSITY =  2.5500  GM/CC  5 POINTS
25.5  1.65   27.4  1.65   27.4  1.95   25.5  1.95   25.5  1.65
LAYER # 25 DENSITY =  2.3800  GM/CC  5 POINTS
27.4  0.0    31.7  0.0    31.7  0.168  27.4  0.168  27.4  0.0
LAYER # 26 DENSITY =  2.5600  GM/CC  5 POINTS
27.4  0.168  31.7  0.168  31.7  0.473  27.4  0.473  27.4  0.168
LAYER # 27 DENSITY =  2.5200  GM/CC  5 POINTS
27.4  0.473  31.7  0.473  31.7  0.778  27.4  0.778  27.4  0.473
LAYER # 28 DENSITY =  2.6000  GM/CC  5 POINTS
27.4  0.778  31.7  0.778  31.7  1.08   27.4  1.08   27.4  0.778
LAYER # 29 DENSITY =  2.5500  GM/CC  5 POINTS
27.4  1.08   31.7  1.08   31.7  1.39   27.4  1.39   27.4  1.08
LAYER # 30 DENSITY =  2.5400  GM/CC  5 POINTS
31.7  0.0    33.3  0.0    33.3  0.762E-01  31.7  0.762E-01  31.7  0.0
LAYER # 31 DENSITY =  2.5200  GM/CC  5 POINTS
31.7  0.762E-01  33.3  0.762E-01  33.3  0.381  31.7  0.381  31.7  0.762E-01
LAYER # 32 DENSITY =  2.6000  GM/CC  5 POINTS
31.7  0.381  33.3  0.381  33.3  0.686  31.7  0.686  31.7  0.381
LAYER # 33 DENSITY =  2.5500  GM/CC  5 POINTS
31.7  0.686  33.3  0.686  33.3  0.991  31.7  0.991  31.7  0.686
LAYER # 34 DENSITY =  2.5500  GM/CC  5 POINTS
33.3  0.0    34.4  0.0    34.4  0.274  33.3  0.274  33.3  0.0
LAYER #  3 ERROR # 1 POINT #  2 SEG X = 1.00000E 01 AFTER  1 CYCLE(S)
LAYER #  [illegible] ERROR # [illegible] POINT # [illegible] SEG X = [illegible] AFTER  1 CYCLE(S)
LAYER # 15 ERROR # 1 POINT #  4 SEG X = 1.00000E 01 AFTER  1 CYCLE(S)
LAYER # 15 ERROR # 2 POINT #  4 SEG X = [illegible] AFTER  1 CYCLE(S)
LAYER # 17 ERROR # [illegible] POINT #  4 SEG X = [illegible] AFTER  1 CYCLE(S)
LAYER # 17 ERROR # 2 POINT #  5 SEG X = 1.71000E 01 AFTER  1 CYCLE(S)
```

TABLE 12.

TWO DIMENSIONAL GRAVITY ANOMALIES [illegible]
GRAVITY SURVEY IN [illegible] SOCORRO BASIN, SOCORRO COUNTY, N.MEX

DENSITY CONTRAST [illegible] GM/CC

#	CALCULATION POINTS X COORD	Z COORD	GRAVITY ANOMALIES (MILLIGALS) HORIZONTAL	VERTICAL	TOTAL	OBSERVED	DEVIATION	[illegible]
1	1.0[illegible]E 01	-4.57500E-02	-4.05089E-01	-1.07653E 01	1.07729E 01	-6.55000E 00	[illegible]	[illegible]
2	1.06[illegible]E 01	-4.57500E-02	-1.32536E 00	-9.46493E 00	9.55651E 00	-5.90000E 00	[illegible]	[illegible]
3	1.11000E 01	-4.57500E-02	-2.21535E 00	-9.47903E 00	9.73447E 00	-5.30000E 00	4.13[illegible]	[illegible]
4	1.18[illegible]E 01	-4.57500E-02	-2.71[illegible]E 00	-9.17[illegible]E 00	9.[illegible]E 00	-4.70000E 00	[illegible]	[illegible]
5	1.22[illegible]E 01	-4.57500E-02	-4.[illegible]E 00	-9.2[illegible]E 00	1.0[illegible]E 01	-4.[illegible]E 00	[illegible]	[illegible]
6	1.27[illegible]E 01	-4.57500E-02	-6.59[illegible]E 00	-1.00[illegible]E 01	1.20[illegible]E 01	-5.[illegible]E 00	[illegible]	[illegible]
7	1.31[illegible]E 01	-4.57500E-02	-7.4[illegible]E 00	-1.17[illegible]E 01	1.34[illegible]E 01	-6.40[illegible]E 00	[illegible]	[illegible]
8	1.35[illegible]E 01	-4.57500E-02	-7.99[illegible]E 00	-1.25[illegible]E 01	1.48[illegible]E 01	-7.70[illegible]E 00	[illegible]	[illegible]
9	1.39[illegible]E 01	-4.57500E-02	-8.37[illegible]E 00	-1.34[illegible]E 01	1.58[illegible]E 01	-9.50[illegible]E 00	[illegible]	[illegible]
10	1.41[illegible]E 01	-4.57500E-02	-8.6[illegible]E 00	-1.46[illegible]E 01	1.70[illegible]E 01	-1.1[illegible]E 01	[illegible]	[illegible]
11	1.45[illegible]E 01	-4.57500E-02	-8.69[illegible]E 00	-1.64[illegible]E 01	1.85[illegible]E 01	-1.25[illegible]E 01	[illegible]	[illegible]
12	1.50[illegible]E 01	-4.57500E-02	-8.17[illegible]E 00	-1.86[illegible]E 01	2.01[illegible]E 01	-1.[illegible]E 01	[illegible]	[illegible]
13	1.54[illegible]E 01	-4.57500E-02	-7.19[illegible]E 00	-2.07[illegible]E 01	2.19[illegible]E 01	-1.5[illegible]E 01	[illegible]	[illegible]
14	1.60[illegible]E 01	-4.57500E-02	-5.50[illegible]E 00	-2.20[illegible]E 01	2.27[illegible]E 01	-1.6[illegible]E 01	[illegible]	[illegible]
15	1.65[illegible]E 01	-4.57500E-02	-3.59[illegible]E 00	-2.33[illegible]E 01	2.35[illegible]E 01	-1.7[illegible]E 01	[illegible]	[illegible]
16	1.71[illegible]E 01	-4.57500E-02	-1.09[illegible]E 00	-2.42[illegible]E 01	2.42[illegible]E 01	-1.90[illegible]E 01	[illegible]	[illegible]
17	1.76[illegible]E 01	-4.57500E-02	1.[illegible]E 00	-2.46[illegible]E 01	2.47[illegible]E 01	-2.0[illegible]E 01	[illegible]	[illegible]
18	1.83[illegible]E 01	-4.57500E-02	4.17[illegible]E 00	-2.46[illegible]E 01	2.49[illegible]E 01	-2.0[illegible]E 01	[illegible]	[illegible]
19	1.88[illegible]E 01	-4.57500E-02	6.41[illegible]E 00	-2.40[illegible]E 01	2.49[illegible]E 01	-1.9[illegible]E 01	[illegible]	[illegible]
20	1.91[illegible]E 01	-4.57500E-02	8.46[illegible]E 00	-2.32[illegible]E 01	2.47[illegible]E 01	-1.7[illegible]E 01	[illegible]	[illegible]
21	1.97[illegible]E 01	-4.57500E-02	1.01[illegible]E 01	-2.20[illegible]E 01	2.42[illegible]E 01	-1.6[illegible]E 01	[illegible]	[illegible]
22	2.03[illegible]E 01	-4.57500E-02	1.19[illegible]E 01	-2.00[illegible]E 01	2.33[illegible]E 01	-1.4[illegible]E 01	[illegible]	[illegible]
23	2.09[illegible]E 01	-4.57500E-02	1.29[illegible]E 01	-1.78[illegible]E 01	2.20[illegible]E 01	-1.25[illegible]E 01	[illegible]	[illegible]
24	2.15[illegible]E 01	-4.57500E-02	1.32[illegible]E 01	-1.55[illegible]E 01	2.04[illegible]E 01	-1.07[illegible]E 01	[illegible]	[illegible]
25	2.21[illegible]E 01	-4.57500E-02	1.28[illegible]E 01	-1.34[illegible]E 01	1.85[illegible]E 01	-9.1[illegible]E 00	[illegible]	[illegible]
26	2.24[illegible]E 01	-4.57500E-02	1.11[illegible]E 01	-1.26[illegible]E 01	1.6[illegible]E 01	-7.6[illegible]E 00	[illegible]	[illegible]
27	2.34[illegible]E 01	-4.57500E-02	1.11[illegible]E 01	-1.13[illegible]E 01	1.59[illegible]E 01	-6.70[illegible]E 00	[illegible]	[illegible]
28	2.40[illegible]E 01	-4.57500E-02	1.07[illegible]E 01	-1.08[illegible]E 01	1.53[illegible]E 01	-5.70[illegible]E 00	[illegible]	[illegible]
29	2.45[illegible]E 01	-4.57500E-02	1.05[illegible]E 01	-1.01[illegible]E 01	1.45[illegible]E 01	-5.50[illegible]E 00	[illegible]	[illegible]
30	2.5[illegible]E 01	-4.57500E-02	9.23[illegible]E 00	-1.01[illegible]E 01	1.37[illegible]E 01	-6.4[illegible]E 00	[illegible]	[illegible]
31	2.55[illegible]E 01	-4.57500E-02	8.76[illegible]E 00	-1.10[illegible]E 01	1.42[illegible]E 01	-7.00[illegible]E 00	[illegible]	[illegible]
32	2.59[illegible]E 01	-4.57500E-02	9.31[illegible]E 00	-1.19[illegible]E 01	1.51[illegible]E 01	-7.30[illegible]E 00	[illegible]	[illegible]
33	2.66[illegible]E 01	-4.57500E-02	1.0[illegible]E 01	-1.23[illegible]E 01	1.61[illegible]E 01	-7.00[illegible]E 00	[illegible]	[illegible]
34	2.70[illegible]E 01	-4.57500E-02	1.22[illegible]E 01	-1.16[illegible]E 01	1.70[illegible]E 01	-6.20[illegible]E 00	[illegible]	[illegible]
35	2.77[illegible]E 01	-4.57500E-02	1.30[illegible]E 01	-9.35[illegible]E 00	1.60[illegible]E 01	-4.80[illegible]E 00	[illegible]	[illegible]
36	2.83[illegible]E 01	-4.57500E-02	1.36[illegible]E 01	-8.42[illegible]E 00	1.55[illegible]E 01	-3.80[illegible]E 00	[illegible]	[illegible]
37	2.89[illegible]E 01	-4.57500E-02	1.20[illegible]E 01	-7.99[illegible]E 00	1.44[illegible]E 01	-2.90[illegible]E 00	[illegible]	[illegible]
38	2.96[illegible]E 01	-4.57500E-02	1.19[illegible]E 01	-7.69[illegible]E 00	1.42[illegible]E 01	-2.30[illegible]E 00	[illegible]	[illegible]
39	3.02[illegible]E 01	-4.57500E-02	1.20[illegible]E 01	-7.42[illegible]E 00	1.41[illegible]E 01	-1.80[illegible]E 00	5.63[illegible]	[illegible]
40	3.04500E 01	-4.57500E-02	1.24[illegible]E 01	-7.10[illegible]E 00	1.43[illegible]E 01	-1.30000E 00	5.60[illegible]	[illegible]

TOTAL RUNNING TIME FOR THIS JOB WAS 38.81[illegible]

TABLE 13.

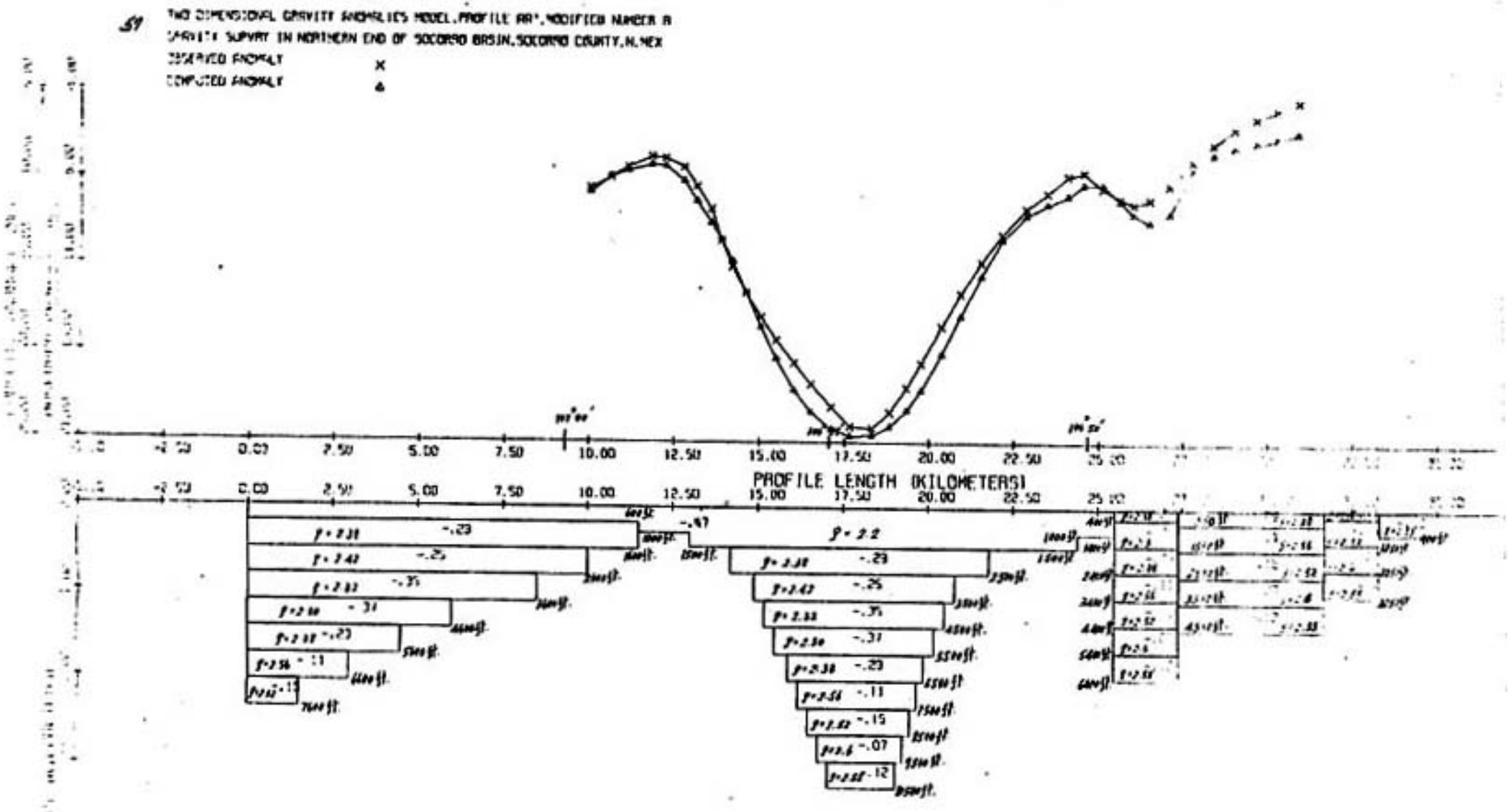

Figure 16. Observed and computed gravity curves, from data table 12.

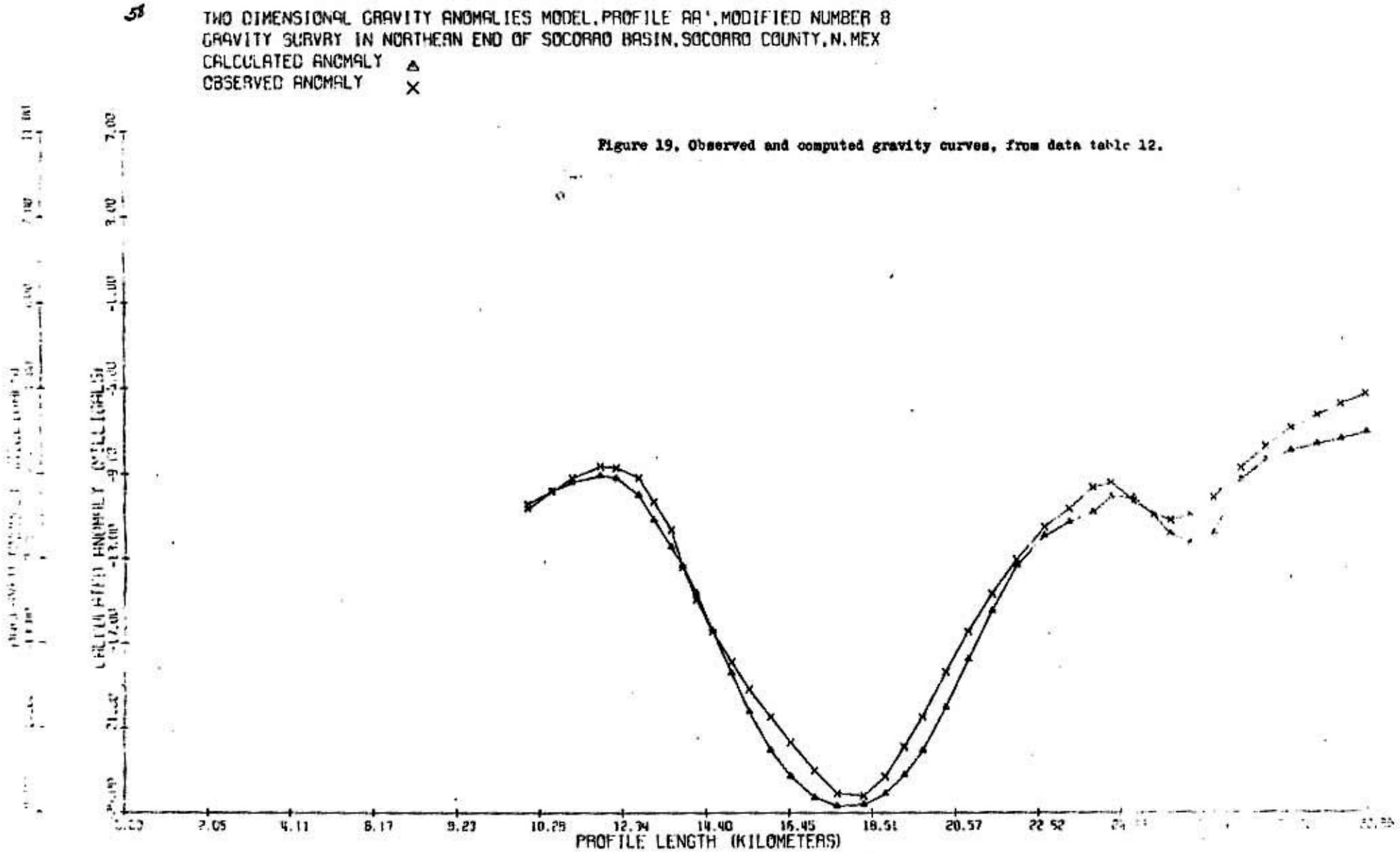

Figure 19. Observed and computed gravity curves, from data table 12.

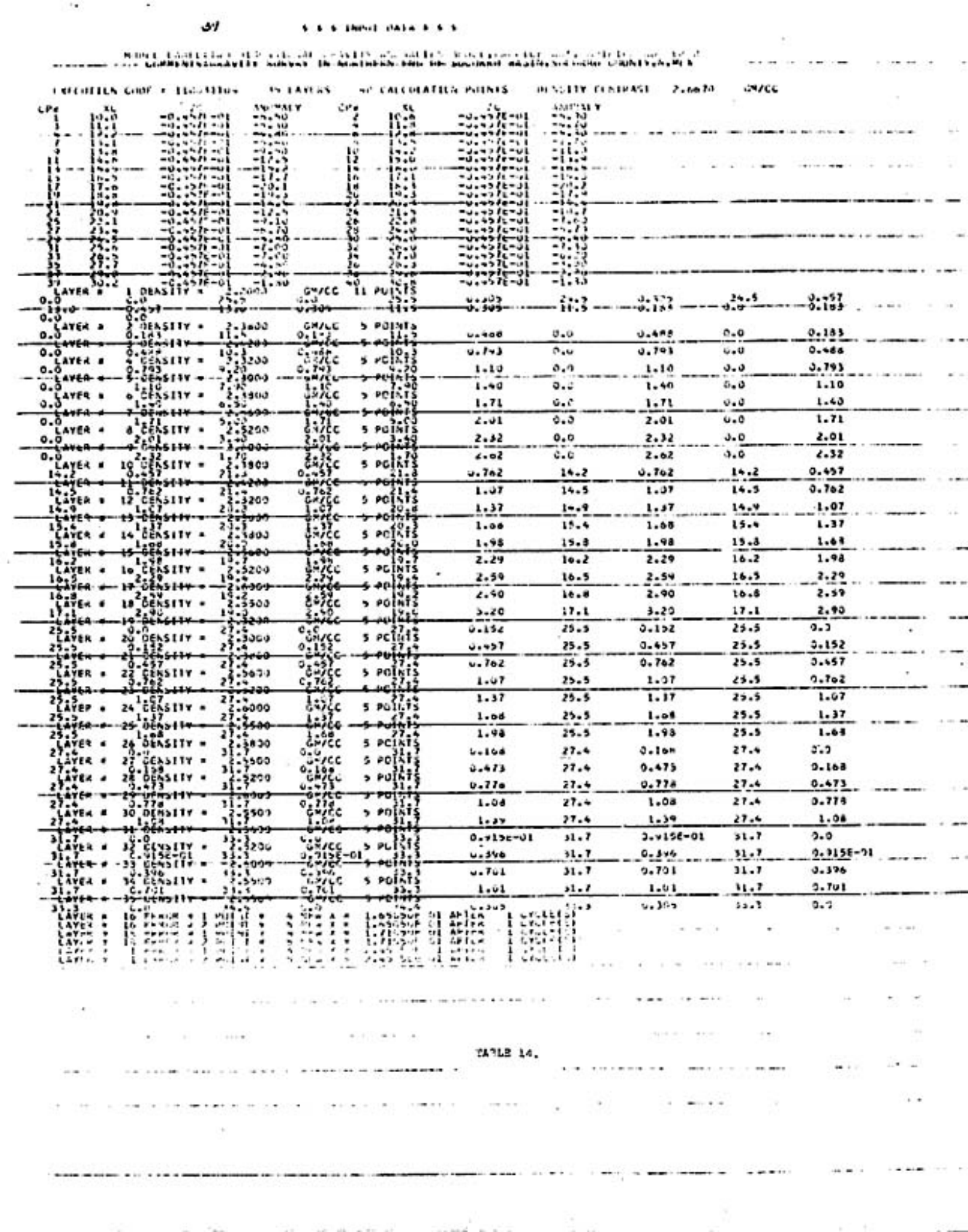

TABLE 14.

[illegible]

DENSITY CONTRAST [illegible] GM/CC

K	CALCULATION POINTS X COORD	Z COORD	GRAVITY ANOMALIES (MILLIGALS) HORIZONTAL	VERTICAL	TOTAL	OBSERVED	DEVIATION	ALPHA
1	1.05000E 01	-4.57500E-02	1.23353E 00	-1.22785E 01	1.23401E 01	-6.50000E 00	5.77834E 00	[illegible]
2	1.09900E 01	-4.57500E-02	3.51051E-01	-1.09746E 01	1.09802E 01	-5.90000E 00	5.07556E 00	[illegible]
3	1.11000E 01	-4.57500E-02	-7.32772E-01	-1.02752E 01	1.03017E 01	-5.30000E 00	4.97517E 00	[illegible]
4	1.15000E 01	-4.57500E-02	-2.56309E 00	-9.76785E 00	1.00987E 01	-4.70000E 00	5.09735E 00	[illegible]
5	1.22000E 01	-4.57500E-02	-3.93132E 00	-9.27373E 00	1.05664E 01	-4.80000E 00	5.92...	[illegible]
6	1.27000E 01	-4.57500E-02	-5.76957E 00	-1.06711E 01	1.20670E 01	-5.30000E 00	5.32108E 00	[illegible]
7	1.31500E 01	-4.57500E-02	-6.77734E 00	-1.17993E 01	1.36072E 01	-6.40000E 00	5.39429E 00	[illegible]
8	1.35500E 01	-4.57500E-02	-7.42584E 00	-1.31554E 01	1.51073E 01	-7.70000E 00	5.45400E 00	[illegible]
9	1.36500E 01	-4.57500E-02	-7.86865E 00	-1.41896E 01	1.62247E 01	-9.50000E 00	4.68045E 00	[illegible]
10	1.41700E 01	-4.57500E-02	-8.20234E 00	-1.55516E 01	1.75914E 01	-1.10000E 01	4.55049E 00	[illegible]
11	1.45700E 01	-4.57500E-02	-8.05299E 00	-1.74580E 01	1.72476E 01	-1.25000E 01	4.95716E 00	[illegible]
12	1.55100E 01	-4.57500E-02	-7.33130E 00	-1.94603E 01	2.08142E 01	-1.35000E 01	5.50632E 00	[illegible]
13	1.54700E 01	-4.57500E-02	-6.19699E 00	-2.11300E 01	2.20211E 01	-1.57000E 01	5.33600E 00	[illegible]
14	1.60000E 01	-4.57500E-02	-4.44307E 00	-2.27277E 01	2.31051E 01	-1.65000E 01	6.22717E 00	[illegible]
15	1.65500E 01	-4.57500E-02	-2.63621E 00	-2.38300E 01	2.39319E 01	-1.77000E 01	6.13465E 00	[illegible]
16	1.71000E 01	-4.57500E-02	-2.56976E-01	-2.46905E 01	2.46917E 01	-1.90000E 01	5.69094E 00	[illegible]
17	1.76500E 01	-4.57500E-02	1.99447E 00	-2.50539E 01	2.51301E 01	-2.01000E 01	4.75305E 00	[illegible]
18	1.81000E 01	-4.57500E-02	4.40756E 00	-2.49608E 01	2.53468E 01	-2.02000E 01	4.76973E 00	[illegible]
19	1.87300E 01	-4.57500E-02	6.06305E 00	-2.45130E 01	2.52612E 01	-1.93000E 01	5.21363E 00	[illegible]
20	1.93200E 01	-4.57500E-02	8.61005E 00	-2.37436E 01	2.53225E 01	-1.79000E 01	5.89353E 00	[illegible]
21	1.97650E 01	-4.57500E-02	1.04527E 01	-2.27451E 01	2.50278E 01	-1.65000E 01	6.24515E 00	[illegible]
22	2.04500E 01	-4.57500E-02	1.24231E 01	-2.06660E 01	2.43199E 01	-1.44000E 01	4.90554E 00	[illegible]
23	2.09900E 01	-4.57500E-02	1.36006E 01	-1.89377E 01	2.33180E 01	-1.25000E 01	6.41759E 00	[illegible]
24	2.15000E 01	-4.57500E-02	1.41305E 01	-1.64352E 01	2.18055E 01	-1.07000E 01	5.73573E 00	[illegible]
25	2.21500E 01	-4.57500E-02	1.39600E 01	-1.39949E 01	1.97676E 01	-9.10000E 00	4.89591E 00	[illegible]
26	2.28000E 01	-4.57500E-02	1.28084E 01	-1.23756E 01	1.78106E 01	-7.60000E 00	4.77574E 00	[illegible]
27	2.34300E 01	-4.57500E-02	1.20006E 01	-1.16621E 01	1.67795E 01	-6.70000E 00	4.96214E 00	[illegible]
28	2.40100E 01	-4.57500E-02	1.15623E 01	-1.11945E 01	1.60734E 01	-5.70000E 00	5.49450E 00	[illegible]
29	2.45300E 01	-4.57500E-02	1.12076E 01	-1.06637E 01	1.54565E 01	-5.40000E 00	5.14379E 00	[illegible]
30	2.51400E 01	-4.57500E-02	1.00484E 01	-1.04934E 01	1.45291E 01	-6.40000E 00	4.09347E 00	[illegible]
31	2.55700E 01	-4.57500E-02	9.71806E 00	-1.13744E 01	1.49605E 01	-7.00000E 00	4.37440E 00	[illegible]
32	2.59700E 01	-4.57500E-02	1.06592E 01	-1.22284E 01	1.50341E 01	-7.30000E 00	4.92931E 00	[illegible]
33	2.64650E 01	-4.57500E-02	1.12470E 01	-1.28499E 01	1.69239E 01	-7.00000E 00	5.65210E 00	[illegible]
34	2.70530E 01	-4.57500E-02	1.30083E 01	-1.21341E 01	1.76477E 01	-6.20000E 00	5.93411E 00	[illegible]
35	2.77360E 01	-4.57500E-02	1.34107E 01	-9.53762E 00	1.67640E 01	-4.80000E 00	4.73712E 00	[illegible]
36	2.83570E 01	-4.57500E-02	1.31061E 01	-8.54860E 00	1.56473E 01	-3.80000E 00	4.74603E 00	[illegible]
37	2.89900E 01	-4.57500E-02	1.27351E 01	-8.08783E 00	1.50863E 01	-2.90000E 00	5.36743E 00	[illegible]
38	2.96200E 01	-4.57500E-02	1.26168E 01	-7.77394E 00	1.48195E 01	-2.30000E 00	5.47349E 00	[illegible]
39	3.02700E 01	-4.57500E-02	1.27001E 01	-7.50801E 00	1.47534E 01	-1.80000E 00	5.70501E 00	[illegible]
40	3.06500E 01	-4.57500E-02	1.29937E 01	-7.17443E 00	1.48428E 01	-1.30000E 00	5.87443E 00	[illegible]

TOTAL RUNNING TIME FOR THIS JOB WAS 38.18s

TABLE 15

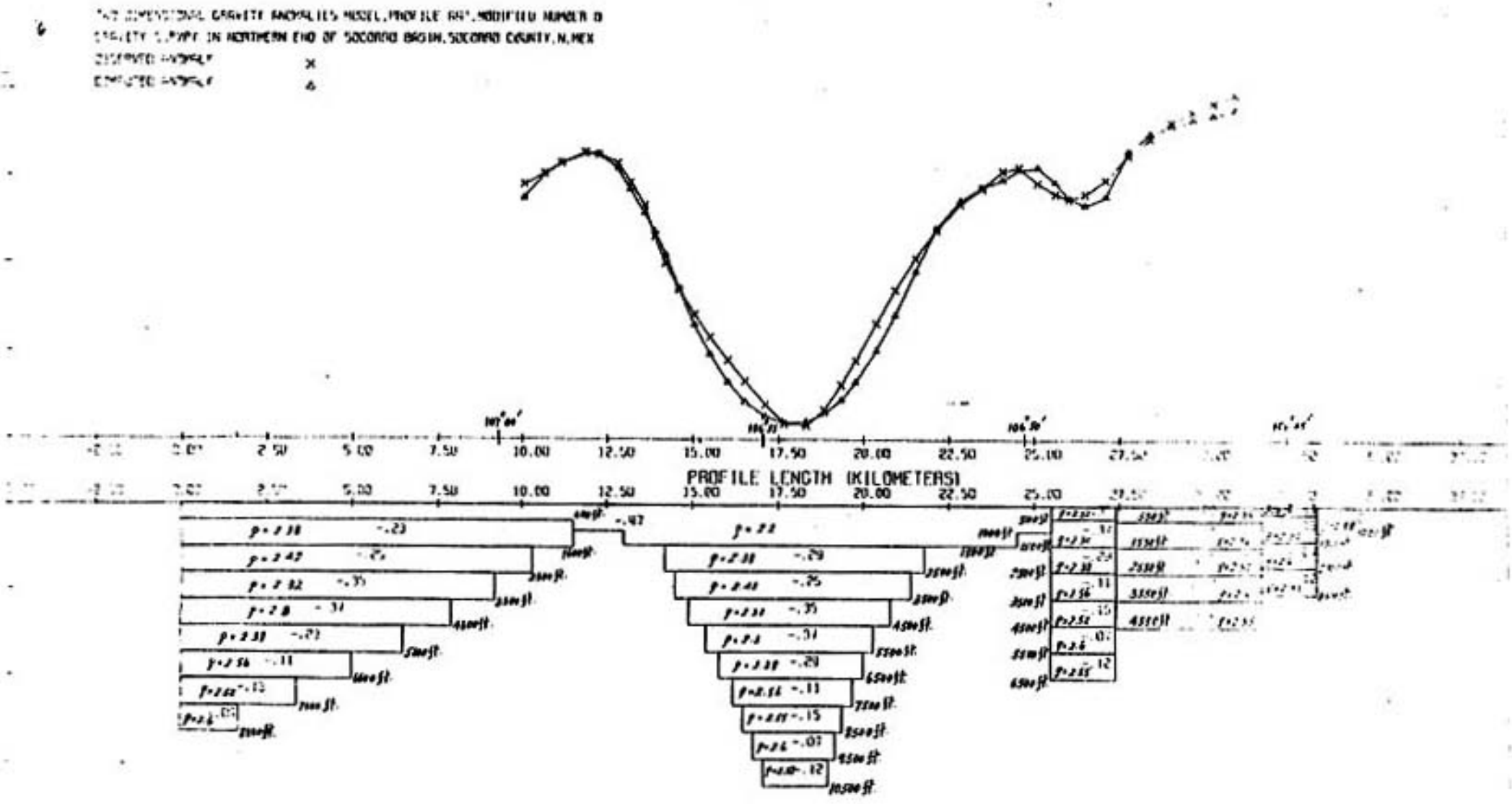

Figure 20. Observed and computed gravity curves, from data table 14.

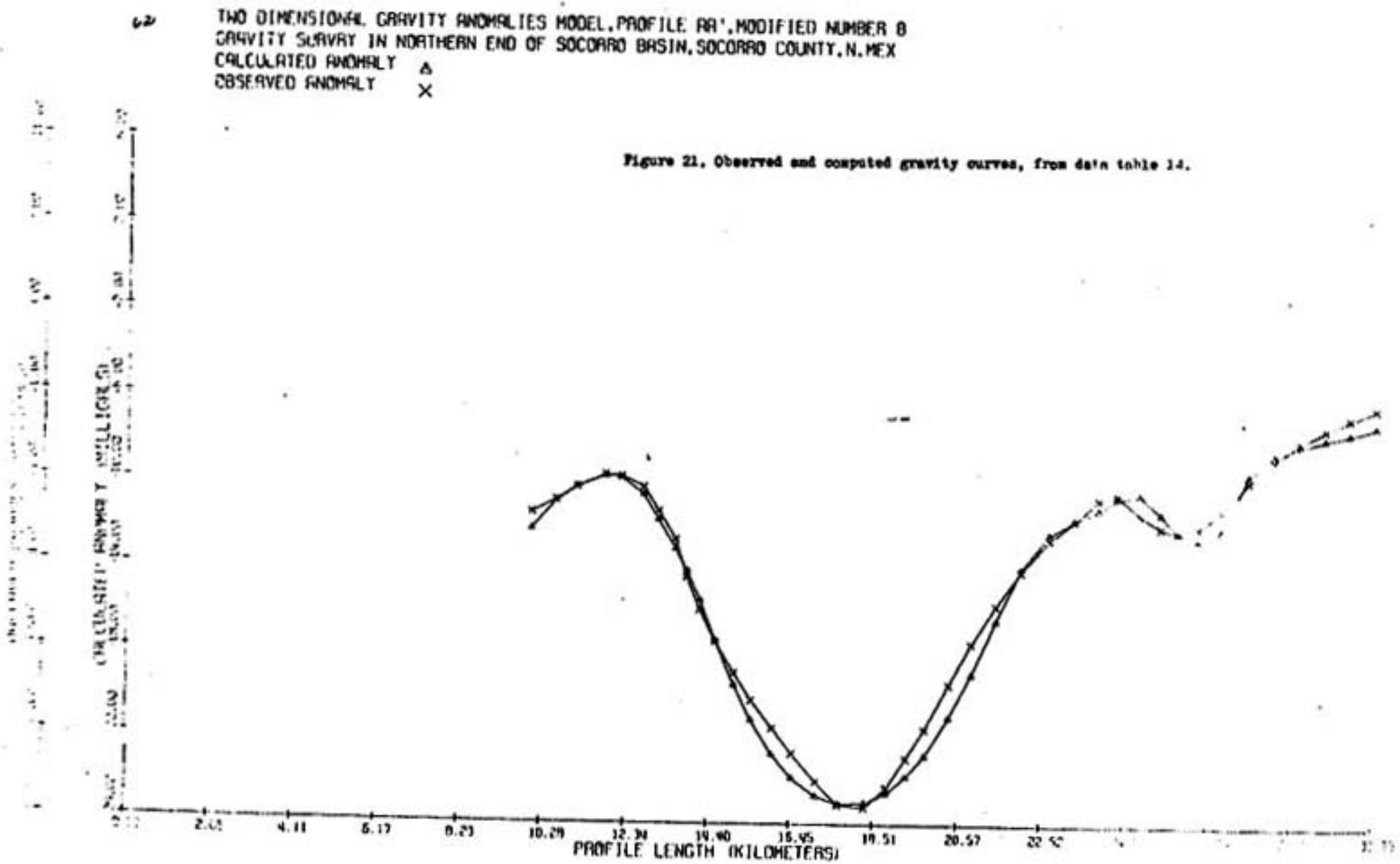

Figure 21. Observed and computed gravity curves, from data table 14.

LAYER # 1	DENSITY =	2.1900	GM/CC	5 POINTS	0.133	0.0	0.133	0.0	0.0
LAYER # 2	DENSITY =	2.1400	GM/CC	5 POINTS	0.466	0.0	0.466	0.0	0.133
LAYER # 3	DENSITY =	2.2200	GM/CC	5 POINTS	0.793	0.0	0.793	0.0	0.466
LAYER # 4	DENSITY =	2.1000	GM/CC	5 POINTS	1.10	0.0	1.10	0.0	0.793
LAYER # 5	DENSITY =	2.1600	GM/CC	5 POINTS	1.40	0.0	1.40	0.0	1.10
LAYER # 6	DENSITY =	2.1400	GM/CC	5 POINTS	1.71	0.0	1.71	0.0	1.40
LAYER # 7	DENSITY =	2.2400	GM/CC	5 POINTS	2.01	0.0	2.01	0.0	1.71
LAYER # 8	DENSITY =	2.2300	GM/CC	5 POINTS	2.32	0.0	2.32	0.0	2.01
LAYER # 9	DENSITY =	2.2000	GM/CC	5 POINTS	2.62	0.0	2.62	0.0	2.32
LAYER # 10	DENSITY =	2.2400	GM/CC	5 POINTS	0.305	6.50	0.305	6.50	0.0
LAYER # 11	DENSITY =	2.2700	GM/CC	5 POINTS	0.610	6.50	0.610	6.50	0.305
LAYER # 12	DENSITY =	2.2200	GM/CC	5 POINTS	0.915	6.50	0.915	6.50	0.610
LAYER # 13	DENSITY =	2.2000	GM/CC	5 POINTS	1.22	6.50	1.22	6.50	0.915
LAYER # 14	DENSITY =	2.2900	GM/CC	11 POINTS	0.305	24.5	0.305	24.5	0.457
					0.305	11.5	0.183	8.20	0.183
LAYER # 15	DENSITY =	2.1900	GM/CC	5 POINTS	0.488	8.20	0.488	8.20	0.183
LAYER # 16	DENSITY =	2.2200	GM/CC	5 POINTS	0.793	8.20	0.793	8.20	0.488
LAYER # 17	DENSITY =	2.2200	GM/CC	5 POINTS	1.10	8.20	1.10	8.20	0.793
LAYER # 18	DENSITY =	2.1800	GM/CC	5 POINTS	0.762	14.2	0.762	14.2	0.457
LAYER # 19	DENSITY =	2.1200	GM/CC	5 POINTS	1.07	14.5	1.07	14.5	0.762
LAYER # 20	DENSITY =	2.2700	GM/CC	5 POINTS	1.37	14.4	1.37	14.4	1.07
LAYER # 21	DENSITY =	2.1000	GM/CC	5 POINTS	1.68	15.4	1.68	15.4	1.37
LAYER # 22	DENSITY =	2.1900	GM/CC	5 POINTS	1.98	15.8	1.98	15.8	1.68
LAYER # 23	DENSITY =	2.1600	GM/CC	5 POINTS	2.29	16.2	2.29	16.2	1.98
LAYER # 24	DENSITY =	2.5200	GM/CC	5 POINTS	2.59	16.5	2.59	16.5	2.29
LAYER # 25	DENSITY =	2.4000	GM/CC	5 POINTS	2.90	16.8	2.90	16.8	2.59
LAYER # 26	DENSITY =	2.2500	GM/CC	5 POINTS	3.20	17.1	3.20	17.1	2.90
LAYER # 27	DENSITY =	2.3200	GM/CC	5 POINTS	0.152	25.5	0.152	25.5	0.0
LAYER # 28	DENSITY =	2.3200	GM/CC	5 POINTS	0.457	25.5	0.457	25.5	0.152
LAYER # 29	DENSITY =	2.3800	GM/CC	5 POINTS	0.762	25.5	0.762	25.5	0.457
LAYER # 30	DENSITY =	2.3500	GM/CC	5 POINTS	1.07	25.5	1.07	25.5	0.762
LAYER # 31	DENSITY =	2.3200	GM/CC	5 POINTS	1.37	25.5	1.37	25.5	1.07
LAYER # 32	DENSITY =	2.3200	GM/CC	5 POINTS	1.68	25.5	1.68	25.5	1.37
LAYER # 33	DENSITY =	2.3500	GM/CC	5 POINTS	1.98	25.5	1.98	25.5	1.68
LAYER # 34	DENSITY =	2.3800	GM/CC	5 POINTS	0.168	27.4	0.183	27.4	0.0
LAYER # 35	DENSITY =	2.3500	GM/CC	5 POINTS	0.473	27.4	0.473	27.4	0.168
LAYER # 36	DENSITY =	2.3700	GM/CC	5 POINTS	0.778	27.4	0.778	27.4	0.473
LAYER # 37	DENSITY =	2.3300	GM/CC	5 POINTS	1.08	27.4	1.08	27.4	0.778
LAYER # 38	DENSITY =	2.3500	GM/CC	5 POINTS	1.38	27.6	1.38	27.6	1.08
					[illegible]	31.7	[illegible]	31.7	0.0
					[illegible]	31.7	[illegible]	31.7	[illegible]
					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
					[illegible]	31.7	[illegible]	31.7	[illegible]
					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 16.

TWO DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE AA', MODIFIED NUMBER 8
GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N.MEX

DENSITY CONTRAST -7.6670 GM/CC

K	CALCULATION POINTS X COORD	CALCULATION POINTS Z COORD	GRAVITY ANOMALIES (MILLIGALS) HORIZONTAL	GRAVITY ANOMALIES (MILLIGALS) VERTICAL	GRAVITY ANOMALIES (MILLIGALS) TOTAL	OBSERVED	DEVIATION	ALPHA
1	[illegible] 01	-4.57500E-02	5.86516E-01	-1.20660E 01	1.26811E 01	-6.50000E 00	5.56614E 00	[illegible]
2	[illegible] 01	-4.57500E-02	-1.98654E-01	-1.08766E 01	1.08283E 01	-5.90000E 00	4.92643E 00	[illegible]
3	[illegible] 01	-4.57500E-02	-1.22359E 00	-1.01609E 01	1.02342E 01	-5.40000E 00	4.86091E 00	[illegible]
4	[illegible] 01	-4.57500E-02	[illegible] 00	[illegible] 00	1.01262E 01	-4.70000E 00	4.98476E 00	[illegible]
5	[illegible] 01	-4.57500E-02	-5.21576E 00	-9.75512E 00	1.06253E 01	[illegible] 00	4.95311E 00	[illegible]
6	[illegible] 01	-4.57500E-02	-6.11673E 00	-1.05638E 01	1.22069E 01	-5.40000E 00	5.22392E 00	[illegible]
7	[illegible] 01	-4.57500E-02	-7.10354E 00	-1.17489E 01	1.37279E 01	-6.40000E 00	5.34849E 00	[illegible]
8	[illegible] 01	-4.57500E-02	-7.73189E 00	-1.31106E 01	1.52147E 01	-7.70000E 00	5.41070E 00	[illegible]
9	[illegible] 01	-4.57500E-02	-8.16659E 00	-1.41549E 01	1.63344E 01	-9.50000E 00	4.69932E 00	[illegible]
10	[illegible] 01	-4.57500E-02	-8.49652E 00	-1.55144E 01	1.76812E 01	-1.10000E 01	4.51445E 00	[illegible]
11	[illegible] 01	-4.57500E-02	-8.39668E 00	-1.74252E 01	1.93294E 01	-1.25000E 01	4.92579E 00	[illegible]
12	[illegible] 01	-4.57500E-02	-7.57965E 00	-1.95513E 01	2.09700E 01	-1.39000E 01	5.55134E 00	[illegible]
13	[illegible] 01	-4.57500E-02	-6.49436E 00	-2.11047E 01	2.20637E 01	-1.52000E 01	[illegible] 00	[illegible]
14	[illegible] 01	-4.57500E-02	-4.70639E 00	-2.27043E 01	2.31865E 01	-1.65000E 01	6.20929E 00	[illegible]
15	[illegible] 01	-4.57500E-02	-2.85567E 00	-2.39161E 01	2.39355E 01	-1.77000E 01	6.11637E 00	[illegible]
16	[illegible] 01	-4.57500E-02	-4.55750E-01	-2.46725E 01	2.46767E 01	-1.90000E 01	5.61252E 00	[illegible]
17	[illegible] 01	-4.57500E-02	1.70044E 00	-2.50354E 01	2.51000E 01	-2.01000E 01	4.93477E 00	[illegible]
18	[illegible] 01	-4.57500E-02	4.51196E 00	-2.49665E 01	2.53709E 01	-2.02000E 01	4.70049E 00	[illegible]
19	[illegible] 01	-4.57500E-02	6.49604E 00	-2.45054E 01	2.55404E 01	-1.93000E 01	5.70561E 00	[illegible]
20	[illegible] 01	-4.57500E-02	[illegible] 00	[illegible] 01	[illegible] 01	-1.79000E 01	[illegible] 00	[illegible]
21	[illegible] 01	-4.57500E-02	1.07479E 01	-2.27341E 01	2.49534E 01	-1.65000E 01	6.23410E 00	[illegible]
22	[illegible] 01	-4.57500E-02	1.21749E 01	-2.09565E 01	2.42364E 01	-1.55000E 01	6.55654E 00	[illegible]
23	[illegible] 01	-4.57500E-02	1.34641E 01	-1.89284E 01	2.32285E 01	-1.25000E 01	6.47849E 00	[illegible]
24	[illegible] 01	-4.57500E-02	1.41961E 01	-1.64261E 01	2.17047E 01	-1.07000E 01	5.72677E 00	[illegible]
25	[illegible] 01	-4.57500E-02	1.34164E 01	-1.39865E 01	1.93674E 01	-9.10000E 00	4.86840E 00	[illegible]
26	[illegible] 01	-4.57500E-02	1.26836E 01	-1.23687E 01	1.77161E 01	-7.60000E 00	4.70070E 00	[illegible]
27	[illegible] 01	-4.57500E-02	1.18845E 01	-1.16558E 01	1.66491E 01	-6.70000E 00	4.95577E 00	[illegible]
28	[illegible] 01	-4.57500E-02	[illegible] 01	[illegible] 01	[illegible] 01	-7.70000E 00	5.48853E 00	[illegible]
29	[illegible] 01	-4.57500E-02	[illegible] 01	[illegible] 01	1.53742E 01	[illegible] 00	5.13018E 00	[illegible]
30	[illegible] 01	-4.57500E-02	9.53939E 00	-1.04187E 01	1.44501E 01	-6.40000E 00	4.04875E 00	[illegible]
31	[illegible] 01	-4.57500E-02	9.61766E 00	-1.13644E 01	1.48880E 01	-7.00000E 00	4.36934E 00	[illegible]
32	[illegible] 01	-4.57500E-02	9.95553E 00	-1.22236E 01	1.57645E 01	-7.30000E 00	4.92365E 00	[illegible]
33	[illegible] 01	-4.57500E-02	1.11417E 01	-1.26453E 01	1.68533E 01	-7.00000E 00	5.64532E 00	[illegible]
34	[illegible] 01	-4.57500E-02	1.29902E 01	-1.21299E 01	1.77720E 01	-6.20000E 00	5.92994E 00	[illegible]
35	[illegible] 01	-4.57500E-02	1.37158E 01	-9.53401E 00	1.67039E 01	-4.60000E 00	4.73491E 00	[illegible]
36	[illegible] 01	-4.57500E-02	[illegible] 01	[illegible] 00	[illegible] 01	[illegible] 00	[illegible] 00	[illegible]
37	[illegible] 01	-4.57500E-02	[illegible] 01	[illegible] 00	1.50091E 01	-2.90000E 00	5.16447E 00	-1.00149E 00
38	[illegible] 01	-4.57500E-02	1.25299E 01	-7.77064E 00	1.47550E 01	-2.30000E 00	5.47085E 00	-1.01567E 00
39	[illegible] 01	-4.57500E-02	1.26155E 01	-7.50519E 00	1.46792E 01	-1.80000E 00	5.70519E 00	-1.03417E 00
40	[illegible] 01	-4.57500E-02	1.29113E 01	-7.17171E 00	1.47694E 01	-1.30000E 00	5.87171E 00	-1.06177E 00

TOTAL RUNNING TIME FOR THIS JOB WAS 42.379

TABLE 17.

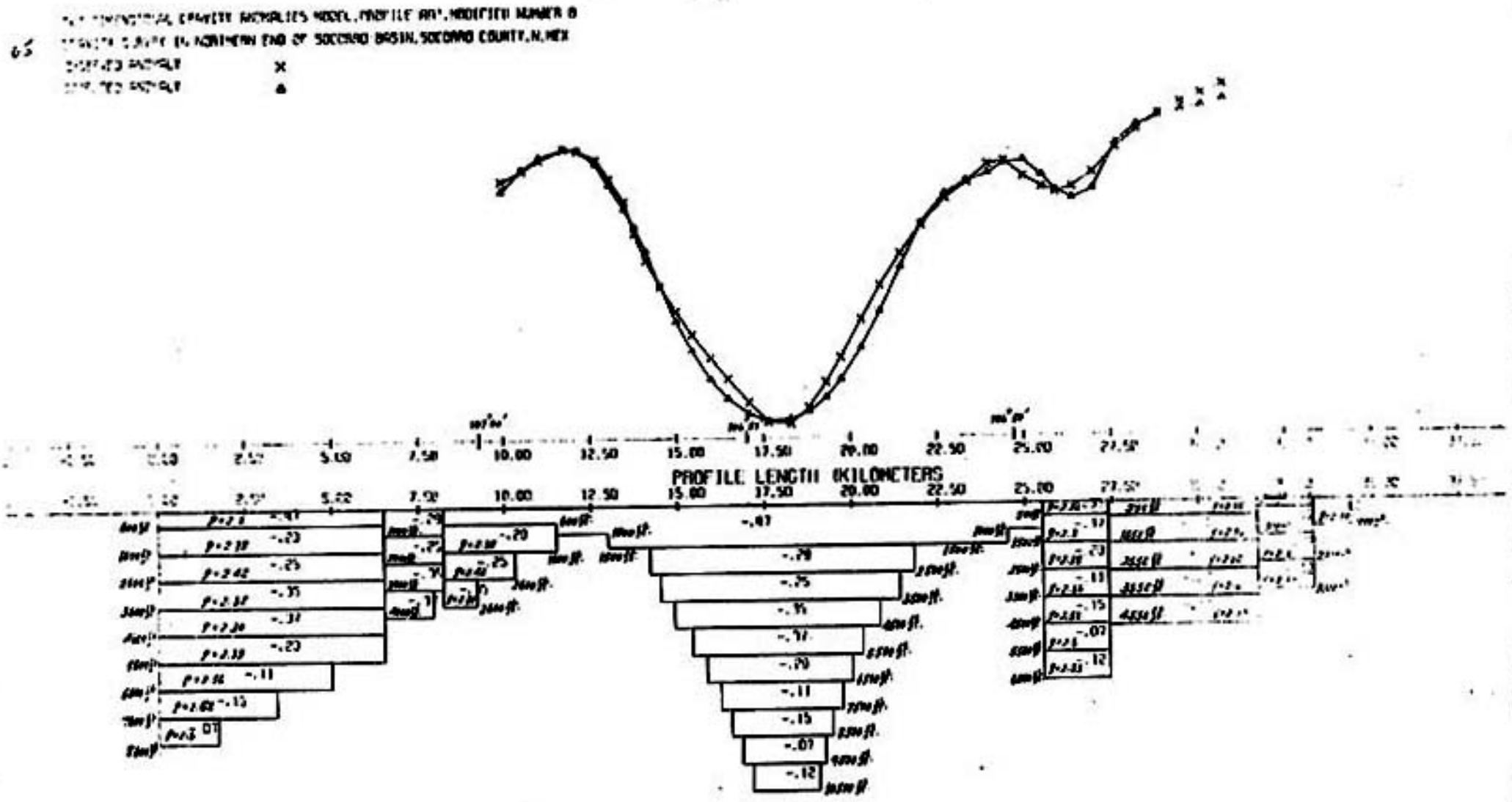

Figure 22. Observed and computed gravity curves, from data table 16.

66 TWO DIMENSIONAL GRAVITY ANOMALIES MODEL, PROFILE AA', MODIFIED NUMBER 8
GRAVITY SURVEY IN NORTHERN END OF SOCORRO BASIN, SOCORRO COUNTY, N. MEX
CALCULATED ANOMALY △
OBSERVED ANOMALY ×

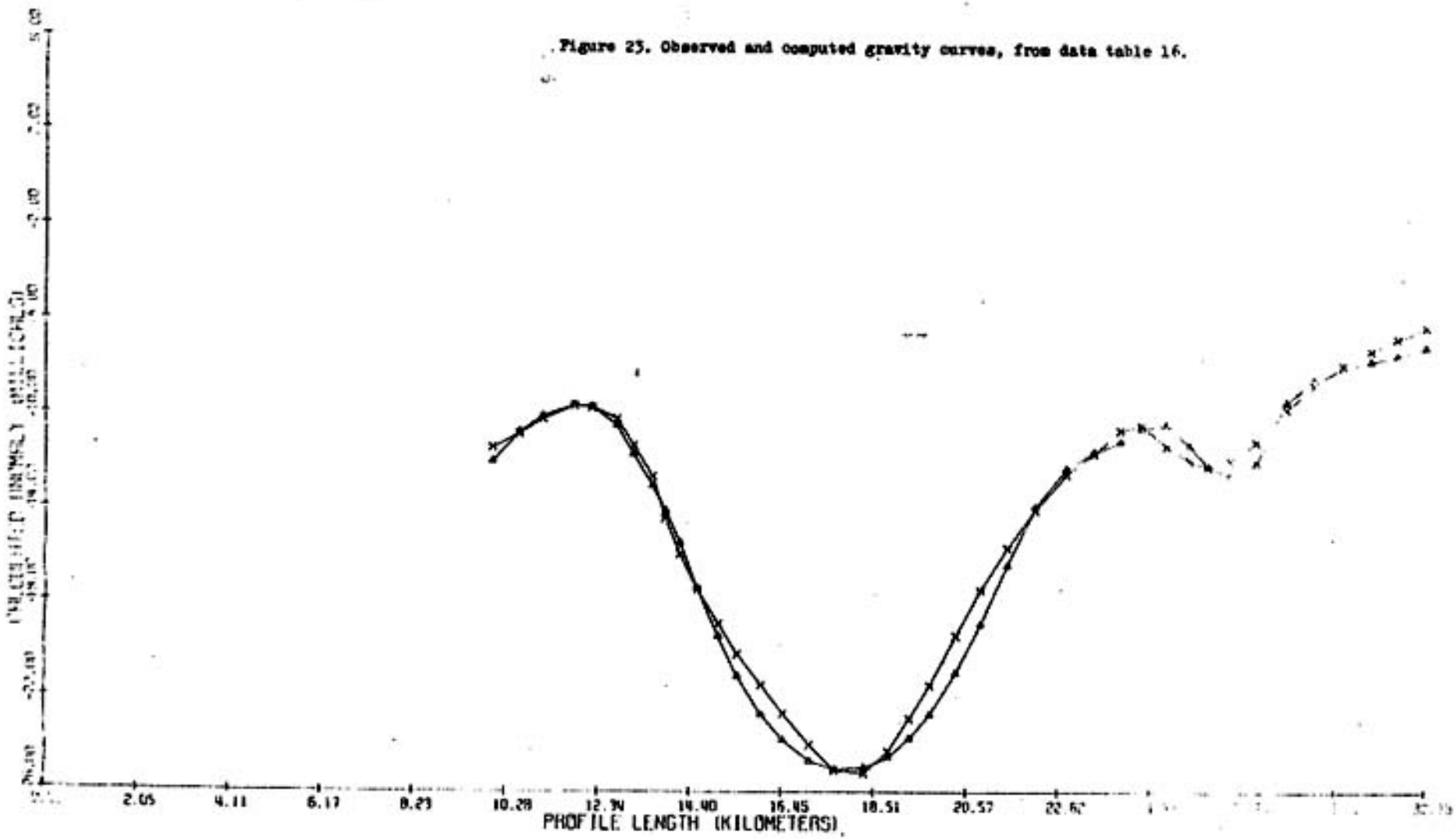

Figure 23. Observed and computed gravity curves, from data table 16.