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MASTER

TOPICAL REPORT

**DETAILED GRAVITY AND AEROMAGNETIC
SURVEYS IN THE
BLACK ROCK DESERT AREA, UTAH**

by

Laura F. Serpa and Kenneth L. Cook

Work performed under Contract No.

DE-AC07-78ET28392

Department of Geology and Geophysics

University of Utah

Salt Lake City, Utah (USA)

January 1980

Prepared for
DEPARTMENT OF ENERGY
Division of Geothermal Energy

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PREFACE

The attached report was submitted by Laura F. Serpa in partial fulfillment of the requirements for the degree of Master of Science in Geophysics, Department of Geology and Geophysics at the University of Utah. The work was performed under the direction of Dr. Kenneth L. Cook.

ABSTRACT

Aeromagnetic and gravity surveys were conducted during 1978 in the Black Rock Desert, Utah over an area of about 2400 km² between the north-trending Pavant and Cricket Mountains. The surveys assisted in evaluating the geothermal resources in the Meadow-Hatton Known Geothermal Resource Area (KGRA) and vicinity by delineating geophysical characteristics of the subsurface.

The gravity measurements from approximately 700 new stations were reduced to complete Bouguer gravity anomaly values with the aid of a computerized terrain-correction program and contoured at an interval of 1 milligal. The aeromagnetic survey was drupe flown at an altitude of 305 m (1000 ft) and a total intensity residual aeromagnetic map with a contour interval of 20 gammas was produced. Two gravity and aeromagnetic east-west profiles and one north-south profile were modeled using a simultaneous 2 1/2-dimensional modeling technique to provide a single model satisfying both types of geophysical data.

The central survey area is dominated by a north trending zone of young volcanics, less than 1 m.y. old, consisting predominately of basalt, which are clearly outlined by the aeromagnetic contours. The volcanics are highly fractured and faulted with the general sense of displacement down to the west along interpreted listric normal faults.

A gravity high occurs over the eastern side of the map, decreasing to the south. The Cenozoic rocks and sediments in this

region are assumed to be shallow, approximately 1 km deep in Pavant Valley. To the west of the volcanic zone is a north-trending gravity low where Neogene rocks are interpreted as attaining a thickness of about 4 km.

An approximately 2 mgal gravity high is located over much of the area of geothermal interest. This gravity high is attributed to travertine deposits associated with the hot springs in this area. A small (20 gamma) magnetic low north of the hot springs is also interpreted as a result of the travertine deposition and possibly some hydrothermal alteration. A comparison of the Meadow-Hatton KGRA with the Roosevelt and Monroe KGRA's indicates that the Meadow-Hatton geothermal system may bear a closer resemblance to the Monroe geothermal system where hot water is produced by circulation along deep faults. Additional studies are needed to fully assess the geothermal potential of the Meadow-Hatton KGRA.

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An approximately 2 mgal gravity high is located over much of the area of geothermal interest. This gravity high is attributed to travertine deposits associated with the hot springs in this area. A small (20 gamma) magnetic low north of the hot springs is also interpreted as a result of the travertine deposition and possibly some hydrothermal alteration. A comparison of the Meadow-Hatton KGRA with the Roosevelt and Monroe KGRA's indicates that the Meadow-Hatton geothermal system may bear a closer resemblance to the Monroe geothermal system where hot water is produced by circulation along deep faults. Additional studies are needed to fully assess the geothermal potential of the Meadow-Hatton KGRA.

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INTRODUCTION

Purpose

The Meadow-Hatton Known Geothermal Resource Area (KGRA) is located in the Black Rock Desert of Utah. The presence of hot springs and possibly some of the youngest basalts and rhyolites in Utah (Luedke et al., 1978; Lipman et al., 1978) make this area interesting as a geothermal prospect. The KGRA is located less than 65 km from two proven geothermal sites, presently under development, Roosevelt Hot Springs and Monroe, Utah.

Detailed gravity and aeromagnetic surveys were conducted in the KGRA and vicinity to aid in the determination of the geothermal potential. The gravity data can give information about 1) geologic structures in the KGRA which may control fluid migration, 2) previously undetected igneous bodies which may be related to a heat source, and 3) the presence of cemented alluvium related to hot fluid migration. The aeromagnetic data can also give information about previously undetected igneous bodies and areas of hydrothermal alteration resulting from hot fluid migration. By combining the gravity and aeromagnetic data, an increased understanding of the Meadow-Hatton KGRA should be gained. The data interpretation may act as a guide for further study and resource development.

In addition to the study of the geothermal area, the data will be incorporated with other geological and geophysical data available in

the vicinity of the KGRA to provide a more comprehensive study of the Black Rock Desert area. A discussion of the effect of the greater detail provided by this gravity survey and the additional geological and geophysical data available for this study on the interpretation of the subsurface geology will be presented. The discussion will assist in the design of future surveys and in the evaluation of similar interpretations.

Geology of the Survey Area

The survey area (Fig. 1) lies along the eastern margin of the Sevier orogenic belt (Armstrong, 1972) in the transition zone between the Great Basin and the Colorado Plateau. The region is bounded on the east by the Pavant Range and on the west by the Cricket Mountains, both of which trend approximately north-south. Along the southern boundary lies the Black Rock offset which Crosby (1973) interpreted as a possible zone of right lateral faulting.

A generalized geologic map of the study area is shown in figure 2. The geology is dominated by a zone of volcanic flows, craters, and cinder cones which trend north-south through the center of the survey area. The exposed volcanics range in age from approximately 900,000 to less than 10,000 years old (Luedke et al., 1978; Hoover, 1974).

Condie and Barsky (1972) defined six basaltic volcanic fields in the survey area. These include (Fig. 3), from north to south, the Deseret, Pavant, Ice Springs, Tabernacle, Kanosh, and Black Rock fields. Well and seismic data (McDonald, 1976; Dennis et al., 1946; Livingston and Maxey, 1944) suggest that the area may be underlain by

Figure 1. Map showing location of survey area (gravity survey - solid lines, aeromagnetic survey - dashed lines).

FIGURE 2. GENERALIZED GEOLOGIC MAP OF THE BLACK ROCK DESERT AREA, UTAH.
 COMPILED FROM NASH AND CRECRAFT (1979), CARRIER (1979), HOOVER (1974),
 AND HINTZE (1963).

EXPLANATION

SEDIMENTARY ROCKS

CENOZOIC

Qal	ALLUVIUM
Qt	TRAVERTINE
Qgs	GRAVEL
Qlts	LANDSLIDES
Tsr	SEVIER RIVER FORMATION
Tfc	FOOL CREEK CONGLOMERATE

MESOZOIC

Jnd	NAVAJO SANDSTONE
Rs	SHINARUMP CONGLOMERATE
Rm	MOENKOPI FORMATION

PALEOZOIC

TPka	KAIBAB LIMESTONE
ε	UNDIFFERENTIATED

SYMBOLS

GEOLOGIC CONTACT
NORMAL FAULT (BALL INDICATES DOWNTHROWN SIDE)
THRUST FAULT (BARBS ON UPPER SHEET)
CINDER CONE
VOLCANIC EDIFICE

IGNEOUS ROCKS

CENOZOIC

Qbi	ICE SPRINGS BASALT
Qbip	ICE SPRINGS PYROCLASTIC DEPOSITS
Qbt	TABERNACLE BASALT
Qbtp	TABERNACLE PYROCLASTIC DEPOSITS
Qbbp	PAVANT BUTTE PALAGONITE
Qpbc	PAVANT BUTTE SIDEROMELANE
Qbpr	PAVANT RIDGE BASALT
Qbbp	PAVANT BASALT
Qbs	BEAVER RIDGE II BASALT
Qbr	BEAVER RIDGE BASALT
Qta	ANDESITE
Qbb	KANOSH BASALT
Qtp	TWIN PEAKS FLOW
Qbd	DESERET BASALT
Qtbsk	SUNSTONE KNOLL BASALT
Qrw	WHITE MOUNTAIN RHYOLITE

Tlr	LAVA RIDGE BASALT
Trf	RHYOLITE FLOWS
Trch	COYOTE HILLS RHYOLITE
Trnt	TWIN PEAK RHYOLITE

SYMBOLS

- GEOLOGIC CONTACT
- NORMAL FAULT (BALL INDICATES DOWNTOWN SIDE)
- ▲— THRUST FAULT (BARBS ON UPPER SHEET)
- ☼ CINDER CONE
- ⌘ VOLCANIC EDIFICE

over 2.5 km of interbedded Neogene basalts, volcanic and fluvio-lacustrine sediments. Typically the individual basalt flows appear to be relatively small in areal extent. The volcanics were not distinguishable in the seismic data of McDonald (1976) but their presence is noted in several wells located near the seismic lines (McDonald, 1976; Dennis et al., 1946; Livingston and Maxey, 1944).

The White Mountain rhyolite dome is the only exposure of silicic volcanic material. The dome is approximately 500 m in diameter and 50 m in height. A potassium-argon age of 0.4 million years (Lipman et al., 1978) makes it the youngest dated rhyolite dome in Utah. White and others (1971) have suggested that young rhyolite domes may be related to the high heat flow observed in some geothermal areas, particularly Roosevelt Hot Springs lying approximately 65 km south of the Meadow-Hatton KGRA. Therefore, the vicinity of White Mountain is of primary interest as a geothermal prospect.

Hatton Hot Springs are located approximately 6 km south of the White Mountain rhyolite dome, where water temperatures of up to 41°C have been recorded (Cleary, 1978). Hatton Hot Springs is surrounded by travertine deposits, which are quarried for decorative building material. No water is currently flowing from the springs, but during the gravity survey steam was observed issuing from a number of shallow holes nearby.

Pavant Valley has received sediments from several lakes and streams throughout much of the Tertiary (McDonald, 1976). Most recently Lake Bonneville occupied this valley. The sediments primarily include gravel, sand, silt, and clay which become more

consolidated with depth (McDonald, 1976; Dennis et al., 1946). From seismic data, McDonald (1976) interprets the Cenozoic rock as structurally overlying pre-Tertiary sedimentary rocks.

Pre-Tertiary rocks in the study area crop out only in the Pavant Range and are composed primarily of limestone, sandstone, and shale (Hintze, 1973). The pre-Tertiary rocks also occur as inclusions in the volcanics in Pavant Valley (Hoover, 1974).

Numerous high-angle faults and fissures cut the volcanic flows. In particular, a major north-northwest trending fault, the Devil's Kitchen fault, extends from about 2 km south of Pavant Butte across the Pavant and Ice Springs basalt fields. McDonald (1976) interpreted the faults as listric, curving into and terminating along a low-angle plane separating Tertiary rocks from pre-Tertiary rocks.

While some faulting is observed near the base of the Pavant Range, there is little evidence for steeply-dipping normal faults in this area. The Pavant Thrust, which placed Cambrian rocks over the Jurassic Navajo Sandstone, is clearly exposed in the Pavant Mountains where Hickcox (1971) has attributed its eastward dip to subsequent tilting of the entire range.

Scope

Contoured aeromagnetic and gravity maps of the study area are presented and discussed. One north-south profile and two east-west profiles were modeled using a simultaneous gravity and aeromagnetic inversion program to provide a geologic interpretation of the subsurface. A comparison of the models presented in this study with

previous geophysical interpretations in the vicinity of the survey area provides a guide to the resolution and accuracy of the models.

The Meadow-Hatton KGRA is compared with the Roosevelt Hot Springs and Monroe KGRA's as a guide to the geothermal evaluation of the KGRA and to assist in the design of future experiments.

DATA ACQUISITION AND PREPARATION

Gravity Data

A gravity survey was conducted in the study area during the summer of 1978 using LaCoste and Romberg gravity meter no. G 461. The survey resulted in 685 new gravity values, approximately 24 percent of which were the result of reading the instrument more than once. The precision of the repeat readings was generally better than 0.1 mgal.

The techniques used in acquiring and reducing the gravity data to simple Bouguer gravity anomaly values are standard and the reader is referred to Carter and Cook (1978) for a detailed description of them. Terrain corrections out to a radius of 166.7 km were made using a computer program provided by the U. S. Geological Survey and modified for use on the University of Utah UNIVAC 1108. A complete listing and program description are provided in Appendix C, Parts I and II.

Little topographic relief is found in the study area, so elevations are generally accurate to within 1 m (0.2 mgal). The terrain corrections were small, usually less than 1 mgal, over most of the area, so that any error contributed from this source is probably insignificant except in the Pavant Mountains where the terrain correction errors may be as large as 0.2 mgal. The data acquired from this survey are assumed to be accurate to within 0.3 mgal in the valley floor and to 0.5 mgal in the mountainous regions.

In addition to the 685 new stations taken in this survey, 63

stations taken during 1977 by the University of Utah GG521 gravity class and 93 stations taken by Isherwood (1967) were included in this study. Because the additional gravity data were acquired using different instruments and were tied to different bases, up to 50 percent of the stations recorded by other sources were reread during the present survey. Because of an apparent difference in the values used for the base stations, it was necessary to subtract 3.54 mgal from the readings taken by Isherwood to make them compatible with the new data. The accuracy of the measurements from other sources, though not necessarily as good as that obtained with the new survey, is sufficiently close for the data to be included in this study.

Four stations were omitted from the complete Bouguer gravity anomaly map because they would have resulted in single point anomalies. There was insufficient time to recheck these values in the field. They are noted in the listing in Appendix A.

Aeromagnetic Data

The aeromagnetic survey was conducted by Aerial Surveys during 1978 under contract to the Department of Geology and Geophysics, the University of Utah. The contractor provided the University with a total magnetic field intensity residual anomaly map (contour interval of 20 gammas). The International Geophysical Reference Field (IGRF), updated to 1975, had been removed from the data.

The survey was drupe-flown at an altitude of 304.8 ± 15 m above the ground surface. Flight lines were spaced at an interval of 0.5 km on a Universal Transverse Mercator (UTM) grid and flown in a

north-south direction.

As was noted for the gravity data, there is little topographic relief in the survey area; therefore flight altitudes are believed to be generally accurate. There appears to be little, if any, herringbone effect resulting from mislocation of the flight lines. The precision of aeromagnetic data has not been studied in detail but, based on the specifications given the contractor and previous estimates (Carter and Cook, 1978), the accuracy is assumed to be at least half of a contour interval (10 gammas).

Other Data

Two reflection seismic sections located in the survey area (McDonald, 1976) and a third section located near Delta, Utah were converted to depth sections (Fig. 3 and 4) using an average velocity of 4 km/sec for the interpreted Cenozoic sediments. Because of its proximity to an approximately 2 1/2 km deep well (McDonald, 1976), the line near Delta was also converted to a depth section using velocities based on the assumption that the highest reflector was from a thick sequence of sand at a depth of 1.5 km. This section is intended to help determine the accuracy of the depths used in subsequent gravity and aeromagnetic modeling.

Most of the depths to the various reflectors appear to be accurate to within 20 percent. Carrier (1979) created a depth section of the southern seismic profile using a slightly more detailed interpretation than that of McDonald (1976) and a more complex velocity model, but again the depths generally agree to within 20 percent.

Figure 3. Map showing location of basalt fields and profiles (seismic profiles - broken lines, gravity and aeromagnetic profiles - solid lines).

Figure 4. Seismic depth sections from seismic reflection lines 1, 2, 3, and 20 (McDonald, 1976) using an average velocity of 4 km/sec for all layers. An alternate velocity model is shown (top) for line 1 using a varying velocity as indicated. ϕ indicates approximate location of Gulf Oil Company well Gronning no. 1.

DATA INTERPRETATION

Gravity Interpretation

The complete Bouguer gravity anomaly map (contour interval of 1 mgal) is shown in figure 5 superimposed on the geologic map. The total relief of the gravity data is 52 mgal, with the gravity values ranging from a high of -150 mgal in the northeast to a low of -202 mgal in the southwest. The main features of this map are a north-trending gravity high in the east and a north-trending gravity low in the west separated by a steep gradient of about 2 mgal/km.

A north-trending gravity high extends the entire length along the eastern side of the survey area from a maximum gravity value of -150 mgal in the north to -180 mgal at the Pavant Range in the south. This gravity high, designated by Isherwood (1967) as the Oak City gravity high, is attributed to a shallow (between 0.2 and 2.4 km deep) layer of early Tertiary sedimentary rocks. Neogene rocks are observed to crop out in portions of this area north of the town of Fillmore. The gravity high is terminated on the south and east at the Pavant Range and to the west by a steep gravity gradient. The northern extent of the Oak City gravity high is not included in this survey, but Isherwood (1967) shows that the high closes about 10 km north of the survey area with a maximum gravity value of about -145 mgal.

The Oak City gravity high is interrupted west of the town of Holden by a narrow east-west trending gravity low. Because this

Figure 5. Complete Bouguer gravity anomaly map (contour interval = 2 mgal).

anomaly is sharp, its source is probably shallow. The gravity low is attributed to alluvial fill in a buried stream channel. Small (1 to 2 mgal) gravity highs occur over Bald Mountain, Cedar Mountain, and West Mountain where Neogene sediments form hills above the alluvium-filled valley floor. A northeast-trending gravity high, with a closure of approximately 2 mgal, occurs in the vicinity of the travertine mound associated with the Hatton Hot Springs. This gravity high is rectangular shaped, about 8 km long and 3 km wide, and extends east of the hot springs. The gravity high is interpreted as representing the main area of travertine deposition. Additional variations in the Oak City gravity high are possibly the result of erosional features in the underlying Cenozoic sediments except along the extreme southern and eastern edges where pre-Tertiary rocks are shallow and may be influencing the gravity data.

A major, north-trending gravity low extending along the western portion of the survey area has been designated by Isherwood (1967) as the Delta gravity low. He interpreted this gravity low as a graben with a maximum depth to basement of approximately 2.6 km bounded by high-angle normal faults. The seismic data of McDonald (1976) and improved density measurements (Carrier, 1979) now available give evidence for a somewhat different interpretation from Isherwood's. In this study the low is interpreted as resulting from the intersection of a shallow wedge of pre-Tertiary rocks on the west with a west-dipping detachment plane at a depth of about 4 km. This interpretation is consistent with the interpretation of the seismic reflection profiles by McDonald (1976).

The generally smooth gravity contours are disrupted in the south of the Delta gravity low. This area was the subject of a gravity and heat flow study by Carrier (1979). He interpreted the variations as the product of the superposition of gravity lows resulting from the presence of igneous material, particularly rhyolites, upon the smoother gravity contours observed to the north.

A steep gravity gradient of about 2 mgal/km separates the Oak City gravity high and the Delta gravity low. In the southern half of the map, the contours trend north-south to northeast-southwest and in the northern half of the map, the contours trend northwest-southeast. The trend of the gravity contours parallels a zone of faulting and volcanics through the center of the survey area. The contours are smooth over the faulted zone of volcanics, though four closely spaced (about 0.32 km between gravity stations) east-west gravity profiles were taken along the gradient.

East-west offsets in the contours near Pavant Butte and West Mountain may be caused by variations in the thickness of the basalt. Near White Mountain, the offset of the contours may reflect the cementation of the alluvium by hot spring deposits. In the southern portion of the area, more complex structures associated with the Black Rock offset and the Pavant Range may involve east-west faulting as interpreted by Crosby (1973). The abrupt change in direction of the mapped faults in the area of some of the offsets in the gravity gradient suggests that there is some possible east-west structural control on these offsets.

The area of geothermal interest includes the White Mountain

rhyolite dome and extends south to the travertine mound. A striking north-south alignment of the rhyolite dome, the Hatton Hot Springs (associated with the travertine mound), and a series of cinder cones in the Kanosh volcanic field suggests a structural relationship. From the gravity data, there is a tenuous suggestion of a gravity high east of these features which terminates about 1 km southeast of the southernmost cinder cone of the Kanosh field and which may extend westward to about 2 km north of White Mountain. The contours in this area are disrupted by the gravity high over the travertine and the highly faulted edge of the Pavant Range so that care must be taken in this interpretation. However, this disruption may be the result of a north-trending horst block with the thermal activity occurring along a fault on the western edge of the horst.

Aeromagnetic Interpretation

The total intensity residual aeromagnetic map (contour interval of 20 gammas) is shown in figure 6 superimposed on the geologic map. There is a strong correlation of magnetic highs with the mapped basalt fields. In general, the -300 gamma contour appears to closely outline the individual fields.

Small individual magnetic highs of 70 to 200 gammas occur over the individual cones of the Kanosh field in the south. The two southernmost magnetic highs are superimposed upon a broader approximately 100 gamma high which extends for about 3 km southwest of the field and trends northwest into the southeastern extent of the Beaver Ridge field and northeast to Tabernacle Hill. The continuous

Figure 6. Total intensity residual aeromagnetic map (contour interval = 20 gammas) with International Geophysical Reference Field (IGRF), updated to 1975, removed from total magnetic field. Survey was drupe flown at an altitude of 305 m (1000 ft) along north-south flight lines spaced every .5 km.

nature of this broad high suggests that a large area may be affected by buried volcanics. The trend of the broad magnetic high roughly parallels the trend of the gravity contours (Fig. 5) in the same region.

Hoover (1974) reports that some basalts of the Beaver Ridge field are reversely polarized. Though small (approximately 20 gammas) magnetic lows are observed over the field, only one pronounced magnetic low (of about -160 gammas) is associated with the Beaver Ridge field. This magnetic low occurs about 2 km south of the Tabernacle Hill field and may be caused by inversely polarized remnant magnetism in the underlying basalts. Generally, the Beaver Ridge field does not appear to have any strong magnetic characteristics, either normal or reversed.

The magnetic high over the Tabernacle Hill field has a maximum relief of 162 gammas in the southern portion of the field but is generally only about 100 gammas. The magnetic high extends approximately 2 km south of the Tabernacle Hill field which may indicate buried volcanic material.

The magnetic high over the Ice Springs field is separated from the Tabernacle Hill magnetic high by a magnetic low of about -70 gammas located over the northern edge of the Tabernacle Hill field. The Ice Springs magnetic high has a maximum relief of about 400 gammas but is generally less than 100 gammas. The -300 gamma contour corresponds approximately with the margin of the outcrop of basalt in the southern half of the field with one notable exception, where the -300 gamma contour extends out over the Pavant field west of the

central part of the Ice Springs field. This westward extension of the magnetic anomaly may indicate either a previously unmapped extension of the Ice Springs basalt or some variations in the thickness and/or the magnetic properties of the Pavant basalt in this area, or a combination of both of these. A magnetic low of about -100 gammas occurs over the northern edge of the Ice Springs field and is assumed to be related to the magnetic high to the south.

The Pavant field has a varied pattern of magnetic anomalies. Numerous small magnetic highs, ranging up to 200 gammas of relief, occur over an outcrop of Pavant Ridge basalt which is younger and thicker than the surrounding Pavant basalt (Nash and Crecraft, 1979). The area of the magnetic highs is cut by the Devil's Kitchen fault and the gravity contours are also somewhat perturbed in this area. These variations in the gravity and aeromagnetic data may be due to an uneven distribution of basalt resulting from deposition upon an originally uneven surface created by erosion and/or faulting.

The Deseret field is clearly defined by an approximately 100 gamma magnetic high. Like the Pavant field, the magnetic high consists of numerous magnetic centers over this highly faulted basalt field and may represent uneven deposition of basalt.

Outside the area of mapped volcanics, there is little variation in the magnetics. A 40 gamma high occurs over the White Mountain rhyolite dome and a 20 gamma low is observed north of the travertine mound.

Profiles

As a preliminary step in the interpretation of the gravity and aeromagnetic data, two east-west profiles and one north-south profile were selected for interpretative geologic modeling. These profiles are shown in figure 3 along with the location of the seismic lines.

The initial models were based on a geologic interpretation of the subsurface created from the mapped surface geology (Nash and Crecraft, 1979) and the seismic depth sections interpreted from McDonald (1976). Initial density contrasts were based on the density measurements made in this study (Appendix B) and the density measurements of Carrier (1979). Initial magnetic susceptibility contrasts were based on measurements made in this study (Appendix B). The gravity and aeromagnetic profiles were then modeled simultaneously using a 2 1/2-dimensional inversion program which is described in Appendix III. This program has the advantage of finding one model which satisfies both the gravity and aeromagnetic data.

Profile A-A' -- Profile A-A' (Fig. 7) is 46 km long extending from approximately 1 km south of the Kanosh field, north across the Kanosh field, the Meadow-Hatton KGRA, the Ice Springs field, and the Pavant field. Along the profile, the total relief of the aeromagnetic anomaly is 412 gammas, most of which occurs over the Kanosh cinder cones, and the total relief of the gravity anomaly is 13 mgal. Seismic line 2 (McDonald, 1976) intersects this profile at a point approximately 36 km from the southern end of the profile. The estimated depths from the seismic line were used to constrain the

Figure 7. Interpretative model for gravity and aeromagnetic profile A-A'. The geophysical parameters modeled for polygons 1 through 9 are listed below:

Polygon no.	Density Contrast (g/cc)	Magnetic Susceptibility (cgs)	Half Strike length (km)
1	0.00	0.0	-
2	-0.20	0.0007	100.0
3	-0.40	0.0007	100.0
4	-0.40	0.0038	1.0
5	-0.40	0.0037	1.0
6	-0.40	0.0032	0.5
7	-0.25	-0.0004	4.0
8	-0.28	0.0032	5.0
9	-0.28	0.0035	8.0

FOR UPPER 1 KM, VERTICAL EXAGGERATION = 10X

model at the point of intersection.

The model for profile A-A' consists of a bottom interface at a depth varying between 2.5 and 3.8 km beneath the surface. This interface is interpreted as separating pre-Tertiary basement rocks (layer 1) with an average density of 2.75 to 2.80 g/cc and an average magnetic susceptibility of 0.0 to 0.0008 cgs in the deepest layer, from the overlying sedimentary rocks. The interpretation of McDonald (1976) would place Eocene and Oligocene rocks (layer 2) over pre-Tertiary rocks along a detachment plane represented by this interface.

Overlying this deep interface is a layer of rocks (layer 2) with an interpreted density of 2.55 to 2.60 g/cc and magnetic susceptibility of 0.0007 to 0.0015 cgs. The upper boundary of this layer is interpreted as varying between depths of 0.2 to 2.2 km. Variations in the upper boundary of this layer may represent both erosional and structural features. Although McDonald interprets this layer as consisting of early Tertiary rocks, it should be noted that the densities used in this layer are also compatible with those measured by Carrier (1979) for several pre-Tertiary rocks, particularly the Jurassic Navajo sandstone which crops out in an approximately 1 km thick section in the nearby Pavant Range. The deepening of the lower boundary of this layer in the south is interpreted as a result of a southward thickening of lower density pre-Tertiary rocks from the Pavant Range located to the south of the profile.

The lowest two boundaries in the model affect primarily the

gravity data whereas the uppermost bodies are modeled to satisfy both the gravity and aeromagnetic data. Layer 3 is interpreted as representing Neogene fluvio-lacustrine sediments, interbedded volcanics, and Quaternary alluvium. This layer has an assumed density of 2.35 to 2.40 g/cc and a magnetic susceptibility of 0.0007 to 0.0015 cgs. Within Layer 3 are a number of bodies of varying densities and magnetic susceptibilities based upon the rocks which crop out along the profile.

In the south, the cinder cones of the Kanosh field are modeled as separate, trapazoidal-shaped bodies (layers 4, 5, and 6) with broad bases at depths of about 0.75 km narrowing to the surface. The densities of these bodies is assumed to be the same as that of the surrounding rocks, but the magnetic susceptibilities are assumed to be high (approximately 0.0045 cgs).

The travertine mound associated with Hatton Hot Springs is modeled as a higher density (about 2.5 g/cc) and lower magnetic susceptibility (0.0 cgs) body (layer 7) reaching depths of up to 0.9 km. This body is interpreted as representing an area where the travertine has cemented the lower density sediments accompanied by hydrothermal alteration of the magnetite due to the action of hot fluids.

The Ice Springs basalt field is modeled as a 0.001 to 0.2 km thick body (layer 8) with a density of approximately 2.52 g/cc and magnetic susceptibility of about 0.004 cgs. This body deepens to the south and may represent, in part, the higher magnetite content in the alluvium associated with both the Ice Springs and Tabernacle fields.

The Pavant lava flows are modeled as a body (layer 9) approximately 0.15 km thick. A density of about 2.52 g/cc and a magnetic susceptibility of about 0.004 cgs were used for this body.

Profile B-B' -- East-west profile B-B', shown in figure 8, extends 45 km across the central portion of the survey area. The total relief is 24 mgal for the gravity anomaly and 70 gammas for the aeromagnetic anomaly. Most of the relief occurs over the central zone of volcanics in both the gravity and aeromagnetic profiles. Two peaks are observed on the aeromagnetic profile over the alluvium between the Tabernacle field and the Ice Springs field. These magnetic highs are separated by a magnetic low over a small mapped horst (Nash and Crecraft, 1979) in the volcanic material.

The model for profile B-B' consists of a deep (2-4 km) sloping interface which dips between 3° and 4° W. The westward sloping interface is based upon the depth sections interpreted from seismic lines 3 and 20 (McDonald, 1976) which parallel the western end of the profile to the north and south, respectively. The interface is intended to represent the detachment plane interpreted by McDonald (1976) as separating pre-Tertiary rocks from the overlying early Tertiary sedimentary rocks. The lower rocks (layer 1) are assumed to have a density of 2.75 to 2.80 g/cc and a magnetic susceptibility of 0.0 to 0.0008 cgs.

The interpreted detachment plane is overlain in the west by a wedge of rocks (layer 2) with an assumed density of 2.65 to 2.70 g/cc and a magnetic susceptibility of 0.0003 to 0.0010 cgs. This wedge is

Figure 8. Interpretative model for gravity and aeromagnetic profile B-B'. The geophysical parameters modeled for polygons 1 through 5 are listed below:

Polygon no.	Density Contrast (g/cc)	Magnetic Susceptibility (cgs)	Half Strike Length (km)
1	0.00	0.0	-
2	-0.20	0.0007	100.0
3	-0.11	0.0003	100.0
4	-0.40	0.0007	100.0
5	-0.28	0.0032	6.0

interpreted by McDonald as pre-Tertiary rocks also.

From approximately 12 km east of the western end of the profile to the eastern end, the detachment plane is overlain by rocks interpreted as Eocene and Oligocene (layer 3). Based on the seismic interpretation (McDonald, 1976), faults that were mapped at the surface by Nash and Crecraft (1979) were projected as listric normal faults which curve into and terminate along the detachment plane. These projected faults were modeled to vary the upper surface of layer 3 to provide a better fit to the gravity data. Other variations in the upper surface of this layer may represent either faulting or an older erosional surface.

Layer 4 is interpreted as Neogene sediments with a density of approximately 2.35 to 2.40 g/cc and a magnetic susceptibility of 0.0007 to 0.0015 cgs. A small body of basalt is modeled (layer 5) beneath the surface in the area between the Ice Springs and Tabernacle basalt fields. The interpreted basalt has an assumed density of about 2.50 g/cc and an assumed magnetic susceptibility of 0.0032 cgs. Variations in the bottom of the interpreted basalt are intended to represent variations of thickness resulting from flowing onto an irregular, faulted surface. The central magnetic low is modeled as the result of a thinner layer of basalt overlying a horst block.

Profile C-C' -- East-west profile C-C' (Fig. 9) extends approximately 40 km across the southern portion of the study area. The total relief is 26 mgal for the gravity anomaly and 220 gammas for the aeromagnetic anomaly. The profile is approximately parallel to, and about 5 km

Figure 9. Interpretative model for gravity and aeromagnetic profile C-C'. The geophysical parameters modeled for polygons 1 through 7 are listed below:

Polygon no.	Density Contrast (g/cc)	Magnetic Susceptibility (cgs)	Half Strike Length (km)
1	0.00	0.0	-
2	0.09	0.0003	100.0
3	-0.20	0.0007	100.0
4	-0.40	0.0007	100.0
5	-0.25	-0.0005	4.0
6	-0.28	0.0032	0.5
7	-0.50	0.0032	4.0

north of, the Black Rock offset and the southern portion of the Pavant Range.

The model for profile C-C' has a deep layer (1) of interpreted pre-Tertiary rocks with an assumed density of 2.75 to 2.80 g/cc and magnetic susceptibility of 0.0 to 0.008 cgs. In the west, the surface of this layer is interpreted as a detachment plane separating pre-Tertiary basement rocks from Tertiary rocks. This layer deepens eastward beneath the Pavant Range to include a thicker sequence of low-density pre-Tertiary rocks. The eastern portion of the model gives a poor fit to the observed gravity and aeromagnetic data, and it is reasonable to assume that structures in the pre-Tertiary rocks, particularly near the mountains, are more complex than the model would suggest.

Layer 2 shows a wedge of pre-Tertiary rocks interpreted by McDonald (1976) from the seismic data. The density is modeled as 2.84 to 2.89 g/cc, which is inconsistent with the density modeled for profile B-B' for the same layer. The modeled density (profile B-B', layer 2) of 2.65 to 2.70 g/cc is more representative of pre-Tertiary sedimentary rocks observed near the study area. The magnetic susceptibility of 0.0003 to 0.0010 cgs is consistent with profile B-B'.

Overlying the interpreted pre-Tertiary rocks in the east is a layer (3) of rocks with an assumed density of 2.55 to 2.60 g/cc and magnetic susceptibility of 0.0007 to 0.0015 cgs. Because of the proximity of the Pavant Range, layer 3 may include a significant quantity of pre-Tertiary as well as early Tertiary rocks. The upper

boundary of this layer is extremely varied in an effort to produce a fit to the gravity data. The variations do not adequately account for the higher frequency component of the gravity data particularly at about 22 km east. The small horst block modeled in this area is probably in error and the gravity effect is more likely due to a very near surface variation.

Layer 4, interpreted as Neogene rocks, is modeled with a density of 2.35 to 2.40 g/cc and a magnetic susceptibility of 0.0007 to 0.0015 cgs. This layer contains three smaller bodies with varying densities and magnetic susceptibilities.

Layer 5 is interpreted as alluvium cemented by travertine accompanied by hydrothermal alteration. An assumed density of about 2.53 g/cc and magnetic susceptibility of 0.0 are interpreted for this body.

Layer 6 is modeled with an assumed density of about 2.50 g/cc and magnetic susceptibility of about 0.0032. This body is interpreted as basalt, related to the Kanosh cinder cones.

Layer 7, which was modeled to fit the magnetic high in the center of the profile, has an assumed density of 2.25 to 2.30 g/cc and magnetic susceptibility of 0.0032 cgs. This body was initially interpreted as a low-density volcanic material. However, the body is probably not as thick (up to 1 km) as modeled and there is no evidence from the aeromagnetic data that volcanic material extends any distance to the west, as modeled in this area. This body gives a good fit to the magnetic data but a smaller body would probably fit as well.

In summary, profile C-C' gives a good fit to the gravity and

aeromagnetic data but probably does not represent a reasonable geologic interpretation in some areas. The presence of a large, low-density body (layer 7) cannot be justified from the available data.

DISCUSSION

Resolution and Geologic Interpretation

Because of the variety of detailed geological and geophysical data available for this study, an effort has been made to present a detailed interpretation of the subsurface geology. There are, however, limitations in the information that can be derived from the data, and an understanding of these limitations is important before applying the geologic interpretation to future work. A comparison of east-west profile B-B' with two previously interpreted profiles from nearby areas (Isherwood, 1967 and Carrier, 1979) provides some guidelines to the variations possible in the geologic interpretation.

In 1967 Isherwood conducted a regional gravity survey over an area which included the present study area. His east-west profile A-A' (designated IA-A' in this discussion to avoid confusion with north-south profile A-A' presented in this study) parallels profile B-B', approximately 50 km north of profile B-B' (Fig. 8). The western part of profile IA-A' which corresponds roughly with the western side of profile B-B' is shown in figure 10.

The gravity anomalies observed over profile B-B' and IA-A' have similar shapes, and the lowest gravity values are approximately the same (-194 mgal). The total gravity relief over profile IA-A' (approximately 45 mgal) is nearly twice that over profile B-B' (24 mgal). The difference in amplitudes of the anomalies is caused by a

Figure 10. Comparison of profile IA-A' (Isherwood, 1967, solid lines) and profile B-B' (this paper, dashed lines). Distances are relative to profile B-B'.

northward increase in the Oak City gravity high and should not affect the interpretation of the gravity low on the western end of the profiles.

Isherwood (1969) did not have the seismic data (McDonald, 1976), the extensive density measurements made by Carrier (1979), the detailed geologic map (Nash and Crecraft, 1979; Hoover, 1974) or the aeromagnetic data used in this study so it is not surprising that his interpretation is somewhat less detailed. The major difference between the interpretations lies in the estimated depth to basement beneath the gravity low (4 km for profile B-B' and 2.6 km for profile IA-A'). The model for profile B-B' is not significantly more complex than the model for profile IA-A' in this particular area. The assumed density contrast between the rocks that are interpreted as Neogene sediments and the underlying pre-Tertiary rocks is assumed to be -0.5 g/cc for profile IA-A' and -0.4 g/cc for profile B-B'. The density contrast used by Isherwood was not based on density measurements taken in his area whereas the density contrast used in this study was based upon the density measurements of Carrier (1979) in and near the study area for lacustrine sediments (average density of about 2.35 g/cc) and pre-Tertiary rocks (average density of 2.75 g/cc). If the valley fill includes a great depth of unconsolidated alluvium or if the interpretation of the rock types is in error, the assumed density contrast of -0.4 g/cc could be in error by 0.1 g/cc. This uncertainty in the density contrast for profile B-B' could result in an error in the depth to basement beneath the gravity low of 1 km. However, this does not fully account for the 1.4 km difference in the depth

estimates between profile IA-A' and B-B'.

The depth of 4 km used for profile B-B' was based on the depth section interpreted from seismic line 3 (McDonald, 1976) located about 7 km north of this profile. An average velocity of 4 km/sec (Gertson and Smith, 1979) was used to estimate the depth. Again, the presence of significant amounts of low-velocity alluvium could decrease this velocity estimate. The velocity is probably not in error by more than 1 km/sec, with 4 km/sec representing a maximum value, which would result in an error of -1 km in the depth estimate.

In summary, Isherwood's interpretation of the depth to basement provides a minimum depth estimate, whereas the interpretation presented in this study probably provides a maximum depth estimate. A nearly 2.5 km deep well (McDonald, 1976), drilled in the area of the gravity low near profile IA-A', failed to penetrate pre-Tertiary basement which again makes Isherwood's estimate a minimum depth.

In a gravity and heat flow study, Carrier (1979) used gravity data, taken during this study along the western 24 km of profile B-B', to model a regional gravity profile. The model which Carrier presented, designated CB-B', is shown in figure 11. Profile model CB-B' is different from profile model B-B' in several ways, despite the fact that Carrier had access to all of the data used in this study. The major differences lie in the interpretation of the seismic data and the regional geology. Carrier (1979) computed a depth section from seismic line 20 (McDonald, 1976) using a more complex interpretation than that of McDonald. Carrier interpreted a thick sequence of low-density, low-velocity Quaternary sediments, extending

Figure 11. Comparison of profile CB-B' (Carrier, 1979, solid lines) and profile B-B' (this paper, dashed lines). Distances are relative to profile B-B'.

1 km beneath the surface. Beneath this layer he interpreted fluvio-lacustrine sediments which were interpreted by McDonald as extending from the surface to the top of a detachment plane. The low-velocity layer resulted in a shallower depth section in Carrier's interpretation. Carrier estimated a maximum depth to basement of 3.4 ± 0.4 km whereas this study places it between 3.0 and 4.0 km. Carrier's model using a correspondingly thick low-density layer resulted in an interpreted maximum depth to basement of 3.0 km. There is no direct evidence for a thick sequence of low density material along the profile, but it is not an unreasonable interpretation for valley fill. The low velocity of the upper layer resulted in a steeper dip along the interpreted detachment plane (8° W in profile CB-B' versus 3.3° W in profile B-B'). The steeper dip, if continued for 5 km east of profile CB-B', would bring the basement rocks to the surface in an area where no outcrops are found and would require the interpretation of higher density rocks within the basement to account for the gravity high east of this area. Again, there is no evidence for a change in the density of the basement rocks, but it is not inconceivable.

Profile CB-B' suggests a greater knowledge of the subsurface geology than might be warranted from the available data but is not inconsistent with the general geology of the area. Carrier (1979) interpreted a slightly lower density (2.71 g/cc) for the basement rocks than was assumed in this study (2.75 to 2.80 g/cc) which resulted in smaller density contrasts for profile CB-B'. The placement of an intermediate density (2.55 to 2.60 g/cc) layer in

profile B-B' probably, in part, compensated for the smaller density contrast modeled in profile CB-B'.

As was stated in the previous discussion of Isherwood's profile IA-A', the model for profile B-B' probably gives a maximum estimate for basement depths. Carrier's model does give reasonable depth estimates except possibly in the eastern part of his profile where water wells (Dennis et al., 1946; Livingston and Maxey, 1944) did not penetrate shallow basement rocks.

In summary, even with a variety of geologic and geophysical data, there can be wide variations in the interpretations. The additional data have certainly improved the interpretations and helped to limit the range of possible interpretations, but there still remain unavoidable uncertainties. The densities, magnetic susceptibilities, and seismic velocities for a given geologic feature may vary widely over short distances. It is highly doubtful that geologic boundaries are as simple or abrupt as the models indicate; but, if the uncertainties are clearly understood, the model can provide a guide to a geologic interpretation that is as reasonable as any geologic cross section based on surface measurements.

From the models presented in this study, a geologic interpretation is shown in the interpretative geologic cross sections in figure 12. The volcanic flows, which were modeled as one single body in several places, may represent numerous thin flows interbedded with the alluvium. Generally, an effort was made to choose the simplest model which satisfied the data and was geologically reasonable. For this reason, the trapezoidal bodies modeled beneath

**FIGURE 12. INTERPRETATIVE GEOLOGIC CROSS SECTIONS
FOR PROFILES A-A' AND B-B'**

LEGEND

SEDIMENTARY DEPOSITS AND ROCKS

- Neogene sediments, composed predominantly of sand, silt, clay, and gravel.
- Neogene sediments cemented by travertine.
- Tertiary (Neogene ?) sand and gravel.
- Early Tertiary sedimentary rock.
- Mesozoic sedimentary rock composed predominantly of sandstone, shale, limestone, and dolomite.
- Paleozoic and Precambrian sedimentary rock composed predominantly of limestone, dolomite, and quartzite.
- Pre-Tertiary rock of unknown composition.

IGNEOUS

- Quaternary basalt.
- Precambrian crystalline rocks.

SYMBOLS

- Interpreted geologic contact
- Interpreted fault.

the Kanosh cinder cones are believed to represent a more complex sequence of basalts which are probably continuous at depth. Likewise, the modeled body of travertine may represent a larger area of alluvium cementation with gradational boundaries. The throw and dip shown on any individual fault within the fault zone is only poorly constrained, and the fault zone could probably have been modeled as a single sloping interface. The presence of surface faults and the evidence for listric faulting in the seismic data (McDonald, 1976) made the modeling of individual faults, curving at depth, preferable. Too few magnetic susceptibility measurements were made in the volcanic rocks to provide a reasonably good estimate of the true variations of the magnetic properties. This may result in large variations in the true thickness of the volcanic bodies. The boundary between the early and late Tertiary sediments is probably not distinct but rather, in part, a gradational boundary resulting from compaction of the sediments. There is, however, a seismic reflector which corresponds with this boundary and may represent a significant change in lithology.

None of the data provided any interpretable information about the rocks beneath the interpreted detachment plane. Therefore, for the purposes of geophysical modeling, these rocks have been assumed homogeneous with respect to their geophysical properties. Major lateral variations in the underlying rocks would appear as long wave-length effects in the data. The interpretation presented in this study assumed that the longest wavelength observed in the gravity data was due to the detachment plane. This interpretation appears reasonable from the seismic data (McDonald, 1976), but the presence of

deeper variation should be considered a possibility.

In general, the geologic interpretation presented here should be considered as a simplified representation of the subsurface geology. Additional data should make further improvements on this interpretation possible. Particularly, deep well logs would make it possible to fix the models in their vicinity and give additional information on the geophysical parameters of individual geologic features.

Geothermal Significance.

The Meadow-Hatton KGRA is located in the area between, and including, the White Mountain rhyolite dome and the Hatton Hot Springs. Table 1 is a comparison of the Meadow-Hatton KGRA with the Roosevelt and Monroe KGRA's. There are a number of similarities, particularly in the young ages of the rhyolites, between the Meadow-Hatton and Roosevelt KGRA's, but there is no evidence for a large volume of silicic igneous activity at Meadow-Hatton. The absence of any large gravity or aeromagnetic anomalies associated with the White Mountain rhyolite dome suggests that either there is only a small body of rhyolite or that any larger body is being masked by possibly the volcanics or the travertine deposits. The measured density of rhyolite (Appendix B; Carrier, 1979) varied between 2.20 and 2.40 g/cc, which is approximately the same as the densities of the shallow sediments. Therefore, the presence of rhyolite may not be detectable in the gravity data. The measured magnetic susceptibility of rhyolite (Appendix B; Carter and Cook, 1978), is intermediate,

Table 1. A Comparison of Roosevelt, Monroe, and Meadow-Hatton KGRA's

<u>Characteristic</u>	<u>Roosevelt</u> ^{1/}	<u>Monroe</u> ^{2/}	<u>Meadow-Hatton</u> ^{3/}
Earthquake activity ^{4/}	Minor	Significant	Minor
Volcanism			
Basaltic or Basaltic Andesite Silicic	Mid-Tertiary >0.5 m.y. old	Tertiary Tertiary	Quaternary ^{5/} 0.4 m.y. old ^{5/}
Granitic Pluton	>10 m.y. old	No	No
Hydrothermal Alteration	Yes	Yes	Probable
Hot Springs			
Siliceous deposits	Yes	No	No
Travertine deposits	No	Yes	Yes ^{6/}
Fracture system	Yes	?	?
Faulting			
North-south	Yes	Yes	Yes ^{6/}
East-west	Yes	?	?
Heat flow	1-9 W m ⁻²	.55-3. W m ⁻²	?

^{1/} Ward et al., 1978

^{2/} Mase et al., 1978

^{3/} This paper

^{4/} Olson and Smith, 1976

^{5/} Luedke and Smith, 1978

^{6/} Nash and Crecraft, 1979

overlapping with the measured magnetic susceptibility of basalt but somewhat higher than alluvium and sediments. The small magnetic anomaly over White Mountain probably outlines the maximum extent of the rhyolite in this area. The presence of hot springs and the alignment of these hot springs with the cinder cones to the south and White Mountain to the north, suggests the presence of a north-south fault zone which may act as a conduit for hot water circulating to depths sufficient to heat the water in a manner similar to the Monroe Hot Springs. Again the presence of the travertine deposits over this fault may be masking the expression of such a deep fault in the gravity data. A normal Basin and Range geothermal gradient of $50^{\circ}\text{C}/\text{km}$ would be sufficient to heat water at a depth of 4 km to 200°C . This geothermal gradient was measured by Carrier (1979) for the area lying to the southwest of this study area, and the interpreted detachment plane is modeled at depths of up to 4 km, providing both a heat source and conduit for the circulation of hot water. Geochemical studies, heat flow or an electrical survey may prove useful in evaluating this hypothesis.

In general, the study area bears a closer resemblance to the Monroe KGRA than to the Roosevelt KGRA and may have potential as a local source of heat rather than a large-scale power source. Further studies will be required to assess the true geothermal potential of the Meadow-Hatton KGRA.

A number of interesting and possibly important questions remain unanswered in the area of the Meadow-Hatton KGRA. The magnetic anomaly which extends beneath the Kanosh cinder cones, across the

alluvium, to the Tabernacle field may be related to the White Mountain rhyolite dome. The body causing the magnetic anomaly does not appear to have a significant effect on the gravity data, which suggests a density similar to the density of the alluvium. This low-density volcanic body would be appropriate for rhyolite. A knowledge of the extent of the travertine in the area of the Meadow-Hatton KGRA would help in separating its effect from underlying variations such as those associated with faulting.

CONCLUSIONS

The detailed gravity and aeromagnetic study of the Black Rock Desert area has provided a reasonable geologic interpretation of the subsurface of the study area, particularly by relating a number of different types of data to form a cohesive interpretation. The interpretation of seismic reflection data by McDonald (1976), used as the basis for gravity modeling, was shown to be a reasonable geologic interpretation. Pre-Tertiary basement rocks are interpreted as varying in depth across a central, north-trending fault zone from a depth of approximately 4 km in the west to a depth of approximately 1 km in the east. The top of the pre-Tertiary basement rocks is interpreted as a gently dipping (about 3° W) detachment plane above which sediments are displaced along listric normal faults. The interpretation shows that the listric faults are indistinguishable in the gravity data from Basin and Range type faulting and should result in similar depth to basement estimates.

The surface geologic mapping (Nash and Crecraft, 1979) was used to locate faults for the gravity model and to determine the surface extent of basalt fields for aeromagnetic modeling. By restricting the tops of the bodies representing the basalt to their surface expression, an estimate of the thickness of the basalt was obtained from aeromagnetic modeling. It was generally assumed that variations in the thickness of the basalt were the result of flow upon an

irregular surface created by faulting and/or erosion. It was found that, whereas thicknesses varied considerably within a single field, the modeled basalts were generally less than 0.2 km thick.

The gravity and aeromagnetic data were modeled simultaneously to determine the effect of the high density basalts on the gravity data and the effect on the magnetic data of volcanic material within the valley fill. None of the available data gave interpretable information about the pre-Tertiary rocks underlying the inferred detachment plane. This may suggest that there are no lateral variations in the geophysical properties within this sequence of rocks or, more likely, that the variations are not resolvable with the techniques used.

A comparison of the Meadow-Hatton KGRA with the Roosevelt and Monroe KGRA's (Table 1) shows that the Meadow-Hatton geothermal system may bear a closer resemblance to Monroe than to Roosevelt KGRA. The lack of evidence for a large body of silicic igneous material or near-surface heat source suggests that the hot springs at Meadow-Hatton are produced by water circulation along deep faults. The north-south alignment of the Kanosh cinder cones with the hot springs and White Mountain indicates the presence of a fault zone in the KGRA. This fault zone appears to be masked in the gravity and aeromagnetic data by the travertine deposits associated with the Hatton Hot Springs. Further studies in the KGRA will be required to assess its geothermal potential but preliminary results would indicate that Meadow-Hatton has potential as a local heat source. It is suggested that geochemical, heat flow, and electrical studies may aid

in the determination of a heat source and migration path for fluid circulation. Drill hole data would be useful in determining the extent of the travertine in the KGRA so that the effect of the travertine could be removed from the gravity and aeromagnetic data.

APPENDIX A
LIST OF GRAVITY DATA

The gravity data taken in this study were computed with reference to a base station designated LY002, for which the observed gravity was taken as 979571.84 mgal. This value was obtained from ties between LY002 and the following base stations in the Utah gravity base station network (Cook et al., 1971): 1) Delta, Utah; 2) Beaver, Utah; 3) Milford, Utah; and 4) the University of Utah base station at Salt Lake City, Utah. A complete description of the gravity base station LY002 is given below. Additionally, LY002 was tied to LY001, which was the base station used by Isherwood (1967) and the University of Utah gravity class of 1977. A complete description of the gravity base station LY001 is given by Isherwood (1967, p. 28).

Description of gravity base station LY002

Gravity base station LY002 is located in front of the Millard County court house in Fillmore at a benchmark located beneath the flag pole. The bench mark is designated "U.S.G.S. H138" and is on the sidewalk about 1 meter north of the flagpole and about 10 meters east of the county court house building.

Table 2. Gravity Data

Explanation of Listing of Principal Facts of Gravity Stations

	<u>Units</u>
Latitude	degrees, minutes
Longitude	degrees, minutes
Elevation	meters
Observed gravity	mgal
Theoretical gravity <u>1/</u>	mgal
Free-air gravity anomaly values	mgal
Simple Bouguer gravity anomaly values	mgal <u>2/</u>
Terrain Correction (T.C.) <u>3/</u>	mgal <u>2/</u>
Complete Bouguer gravity anomaly values	mgal <u>2/</u>

Stations taken during this study are prefixed by 'LY'. Stations taken by the University of Utah gravity class of 1977 are prefixed by '77'. Stations taken by Isherwood (1967) are prefixed by 'WI'.

The following stations were not used to produce the final complete Bouguer gravity anomaly map because they result in single point anomalies.

LY071

LY203

LY287

LY458

1/ Theoretical gravity at mean sea level, using the International Gravity Formula.

2/ A density of 2.67 g/cc was assumed for all calculations.

3/ Terrain correction out to a radial distance of 166.7 km from each station.

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY034	38.54.61	112.25.20	1448.	979594.77	980051.97	-10.23	-172.08	1.04	-171.04
LY035	38.55.08	112.27.17	1431.	979597.36	980052.37	-13.31	-173.26	.58	-172.68
LY036	38.53.39	112.25.12	1462.	979588.91	980050.89	-10.69	-174.11	1.22	-172.89
LY037	38.57.87	112.27.92	1419.	979602.11	980054.84	-14.88	-173.43	.31	-173.12
LY038	38.57.87	112.29.04	1421.	979600.01	980054.84	-16.23	-175.06	.23	-174.83
LY039	38.56.21	112.30.20	1425.	979597.63	980053.37	-16.10	-175.30	.24	-175.06
LY040	38.56.22	112.30.43	1425.	979597.30	980053.38	-16.45	-175.65	.22	-175.43
LY041	38.56.25	112.30.65	1426.	979596.81	980053.41	-16.70	-175.99	.21	-175.78
LY042	38.56.22	112.30.79	1427.	979596.62	980053.38	-16.47	-175.91	.29	-175.62
LY043	38.56.13	112.31.11	1429.	979595.40	980053.31	-16.87	-176.58	.20	-176.38
LY044	38.56.28	112.31.33	1430.	979594.54	980053.44	-17.57	-177.39	.16	-177.23
LY045	38.56.33	112.31.53	1428.	979594.52	980053.48	-18.30	-177.87	.15	-177.72
LY046	38.56.42	112.31.75	1428.	979593.98	980053.55	-18.93	-178.49	.14	-178.35
LY047	38.56.46	112.31.98	1426.	979593.61	980053.59	-19.97	-179.30	.13	-179.17
LY048	38.56.49	112.32.21	1424.	979593.66	980053.62	-20.41	-179.58	.15	-179.43
LY049	38.56.49	112.32.32	1424.	979593.58	980053.62	-20.60	-179.73	.10	-179.63
LY050	38.56.50	112.32.53	1421.	979593.45	980053.63	-21.59	-180.42	.11	-180.31
LY051	38.56.50	112.32.64	1421.	979593.23	980053.63	-21.83	-180.64	.11	-180.53
LY052	38.56.50	112.32.90	1421.	979592.47	980053.63	-22.67	-181.45	.08	-181.37
LY053	38.56.50	112.33.15	1420.	979592.20	980053.63	-23.12	-181.84	.11	-181.73
LY054	38.56.55	112.33.47	1422.	979590.91	980053.67	-23.98	-182.87	.06	-182.81
LY055	38.53.71	112.23.83	1492.	979584.80	980051.16	-5.94	-172.67	1.62	-171.05
LY056	38.53.70	112.22.64	1549.	979573.61	980051.16	.54	-172.58	2.18	-170.40
LY057	38.53.83	112.21.31	1632.	979552.73	980051.28	5.13	-177.26	3.10	-174.16
LY058	38.53.83	112.20.48	1696.	979540.38	980051.28	12.44	-177.07	4.13	-172.94
LY059	38.53.46	112.20.08	1736.	979531.19	980050.95	16.01	-178.00	5.70	-172.30
LY060	38.53.00	112.20.18	1875.	979501.00	980050.55	29.09	-180.44	4.90	-175.54
LY061	38.53.29	112.19.25	1814.	979511.87	980050.80	20.72	-181.94	8.32	-173.63
LY062	38.52.65	112.18.22	1947.	979481.20	980050.23	31.71	-185.82	15.59	-170.23
LY063	38.54.40	112.19.63	1722.	979534.36	980051.78	14.11	-178.37	4.83	-173.54
LY064	38.55.22	112.20.15	1613.	979559.81	980052.51	5.16	-175.12	3.12	-172.00
LY065	38.55.15	112.18.83	1737.	979533.30	980052.44	16.82	-177.27	4.56	-172.71
LY066	38.56.35	112.19.29	1621.	979557.55	980053.50	4.17	-176.93	2.53	-174.40

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY001	38.58.28	112.21.12	1521.	979583.69	980055.19	-2.24	-172.17	1.15	-171.02
LY002	38.58.07	112.19.40	1565.	979571.84	980055.02	-.18	-175.08	1.67	-173.42
LY003	38.57.00	112.20.63	1535.	979577.35	980054.07	-3.04	-174.57	1.68	-172.89
LY004	38.56.15	112.21.70	1512.	979580.51	980053.32	-6.38	-175.28	1.67	-173.61
LY005	38.56.12	112.22.38	1492.	979584.80	980053.30	-8.13	-174.86	1.46	-173.40
LY006	38.56.13	112.23.18	1472.	979590.77	980053.31	-8.24	-172.75	1.23	-171.52
LY007	38.56.13	112.24.04	1458.	979594.84	980053.31	-8.41	-171.38	1.02	-170.36
LY008	38.56.14	112.24.60	1449.	979596.88	980053.31	-9.36	-171.25	.89	-170.36
LY009	38.56.15	112.25.17	1443.	979598.23	980053.32	-9.96	-171.12	.78	-170.34
LY010	38.56.15	112.25.75	1437.	979599.37	980053.32	-10.66	-171.18	.68	-170.50
LY011	38.56.16	112.26.30	1433.	979599.78	980053.32	-11.46	-171.54	.59	-170.95
LY012	38.56.17	112.26.86	1429.	979599.95	980053.34	-12.53	-172.17	.52	-171.65
LY013	38.56.18	112.27.46	1426.	979599.67	980053.35	-13.49	-172.89	.45	-172.44
LY014	38.56.19	112.27.91	1425.	979599.04	980053.35	-14.50	-173.76	.40	-173.36
LY015	38.56.18	112.28.53	1424.	979598.41	980053.35	-15.41	-174.57	.34	-174.23
LY016	38.56.20	112.29.10	1423.	979598.00	980053.37	-16.21	-175.24	.30	-174.94
LY017	38.56.34	112.29.91	1423.	979597.89	980053.48	-16.62	-175.58	.25	-175.33
LY018	38.57.54	112.29.67	1426.	979598.45	980054.55	-16.13	-175.48	.20	-175.28
LY019	38.58.75	112.22.28	1490.	979593.00	980055.61	-2.76	-169.28	.86	-168.42
LY020	38.58.75	112.23.98	1458.	979600.16	980055.61	-5.56	-168.47	.63	-167.85
LY021	38.58.75	112.24.82	1446.	979601.87	980055.61	-7.62	-169.17	.54	-168.63
LY022	38.58.75	112.25.67	1433.	979603.56	980055.61	-9.78	-169.93	.45	-169.49
LY023	38.58.75	112.26.24	1427.	979604.23	980055.61	-11.08	-170.52	.39	-170.13
LY024	38.58.78	112.26.80	1423.	979604.05	980055.64	-12.44	-171.46	.34	-171.12
LY025	38.58.80	112.27.37	1418.	979604.03	980055.66	-13.97	-172.45	.30	-172.15
LY026	38.57.88	112.26.80	1424.	979602.93	980054.84	-12.55	-171.65	.40	-171.25
LY027	38.57.88	112.25.66	1434.	979602.20	980054.84	-10.18	-170.40	.51	-169.89
LY028	38.57.88	112.24.25	1455.	979599.76	980054.84	-6.14	-168.71	.69	-168.02
LY029	38.57.88	112.23.13	1476.	979595.25	980054.84	-4.05	-169.01	.85	-168.16
LY030	38.57.05	112.24.15	1456.	979597.67	980054.11	-7.21	-169.89	.83	-169.06
LY031	38.57.00	112.23.13	1474.	979592.73	980054.07	-6.37	-171.12	1.02	-170.10
LY032	38.54.81	112.24.08	1472.	979590.30	980052.14	-7.45	-171.99	1.27	-170.72
LY033	38.53.95	112.25.22	1456.	979591.86	980051.38	-10.21	-172.91	1.12	-171.79

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY067	38.56.54	112.33.69	1422.	979590.47	980053.66	-24.40	-183.29	.05	-183.24
LY068	38.56.52	112.33.92	1424.	979589.49	980053.64	-24.71	-183.84	.04	-183.80
LY069	38.56.50	112.34.14	1424.	979588.81	980053.63	-25.38	-184.51	.03	-184.48
LY070	38.56.49	112.34.38	1428.	979587.52	980053.62	-25.48	-185.06	.01	-185.05
LY071	38.56.53	112.34.59	1433.	979586.61	980053.66	-24.98	-185.05	.01	-185.04
LY072	38.56.64	112.34.77	1440.	979584.85	980053.75	-24.66	-185.53	.04	-185.49
LY073	38.57.30	112.36.13	1423.	979584.23	980054.33	-31.12	-190.08	-.05	-190.13
LY074	38.56.56	112.36.51	1426.	979581.21	980053.67	-32.37	-191.73	-.04	-191.77
LY075	38.56.48	112.35.96	1428.	979583.24	980053.62	-29.61	-189.22	-.03	-189.25
LY076	38.56.46	112.35.42	1430.	979584.35	980053.59	-28.10	-187.84	-.02	-187.86
LY077	38.56.48	112.35.20	1431.	979584.61	980053.62	-27.51	-187.38	-.01	-187.39
LY078	38.56.48	112.34.98	1430.	979585.42	980053.62	-26.76	-186.62	-.01	-186.63
LY079	38.56.48	112.34.74	1430.	979585.92	980053.62	-26.27	-186.12	.00	-186.12
LY080	38.56.50	112.34.56	1429.	979586.91	980053.63	-25.68	-185.39	.01	-185.38
LY081	38.56.58	112.36.94	1431.	979580.05	980053.70	-32.07	-191.96	-.06	-192.02
LY082	38.57.00	112.18.35	1630.	979558.41	980054.07	7.36	-174.79	2.55	-172.24
LY083	38.56.15	112.18.00	1696.	979542.90	980053.32	12.87	-176.65	3.53	-173.12
LY83A	38.57.06	112.17.38	1688.	979546.79	980054.12	13.51	-175.12	2.88	-172.24
LY084	38.57.26	112.16.70	1641.	979556.84	980054.30	9.08	-174.37	4.12	-170.25
LY085	38.57.70	112.15.83	1737.	979538.77	980054.68	20.22	-173.92	3.73	-170.19
LY086	38.58.07	112.16.42	1742.	979538.27	980055.02	20.94	-173.79	2.84	-170.95
LY087	38.58.75	112.16.68	1707.	979546.61	980055.61	17.63	-173.07	2.63	-170.44
LY088	38.58.75	112.15.28	1833.	979518.86	980055.61	28.97	-175.92	3.65	-172.27
LY089	39. 6.86	112.16.90	1532.	979626.01	980097.99	.75	-170.43	.93	-169.50
LY090	39. 7.24	112.20.05	1468.	979642.35	980098.33	-3.08	-167.08	.51	-166.57
LY091	38.55.96	112.37.24	1441.	979577.20	980053.15	-31.15	-192.22	-.05	-192.27
LY092	38.54.99	112.37.88	1449.	979574.15	980052.30	-30.90	-192.86	-.04	-192.90
LY093	38.54.46	112.38.10	1458.	979572.01	980051.84	-29.77	-192.74	-.02	-192.76
LY094	38.53.03	112.38.04	1490.	979565.09	980050.57	-25.63	-192.15	.06	-192.09
LY095	38.52.65	112.38.32	1484.	979564.98	980050.23	-27.19	-193.06	.31	-192.75
LY096	38.58.20	112.34.93	1418.	979586.91	980055.13	-30.57	-189.05	-.04	-189.09
LY097	38.58.59	112.35.23	1265.	979616.63	980055.47	-31.51	-189.90	1.75	-188.15
LY098	38.59.36	112.34.71	1422.	979586.68	980056.15	-30.77	-189.64	-.06	-189.70

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY099	38.59.89	112.34.05	1420.	979588.17	980056.62	-30.31	-188.97	-.05	-189.02
LY100	38.58.96	112.34.06	1422.	979588.27	980055.79	-28.82	-187.69	-.04	-187.73
LY101	38.57.84	112.34.72	1418.	979587.68	980054.81	-29.57	-188.02	-.02	-188.04
LY102	38.57.24	112.34.21	1421.	979588.96	980054.29	-26.73	-185.56	.01	-185.56
LY103	38.58.06	112.33.96	1420.	979588.76	980055.00	-28.12	-186.77	.00	-186.77
LY104	38.58.54	112.33.13	1418.	979591.33	980055.42	-26.62	-185.04	.03	-185.01
LY105	38.58.63	112.32.06	1422.	979594.43	980055.49	-22.29	-181.17	.05	-181.12
LY106	38.58.91	112.31.12	1429.	979596.03	980055.74	-18.77	-178.44	.29	-178.16
LY107	38.54.51	112.29.25	1428.	979597.11	980051.88	-14.07	-173.68	.38	-173.30
LY108	38.55.32	112.29.67	1427.	979597.16	980052.59	-15.05	-174.52	.30	-174.22
LY109	38.54.20	112.29.71	1429.	979596.78	980051.60	-13.87	-173.55	.36	-173.19
LY110	38.54.19	112.30.52	1428.	979597.81	980051.59	-13.11	-172.68	.32	-172.36
LY111	38.53.75	112.31.04	1429.	979597.08	980051.21	-13.19	-172.86	.32	-172.54
LY112	38.53.56	112.31.38	1437.	979594.97	980051.04	-12.68	-173.24	.28	-172.96
LY113	38.53.41	112.31.61	1438.	979593.90	980050.91	-13.23	-173.93	.27	-173.67
LY114	38.53.21	112.31.96	1434.	979593.88	980050.73	-14.30	-174.55	.28	-174.27
LY115	38.52.97	112.32.31	1432.	979593.03	980050.52	-15.51	-175.56	.26	-175.30
LY116	38.53.28	112.32.49	1444.	979591.14	980050.79	-13.99	-175.38	.22	-175.16
LY117	38.53.48	112.33.06	1440.	979590.63	980050.98	-15.91	-176.85	.19	-176.66
LY118	38.53.56	112.33.61	1447.	979587.30	980051.04	-17.25	-178.93	.13	-178.80
LY119	38.53.50	112.34.01	1446.	979586.52	980050.99	-18.35	-179.90	.14	-179.76
LY120	38.53.08	112.34.39	1451.	979583.55	980050.61	-19.45	-181.53	.16	-181.37
LY121	38.54.04	112.33.04	1443.	979587.42	980051.46	-18.67	-179.95	.16	-179.79
LY122	38.54.43	112.34.03	1433.	979588.40	980051.80	-21.34	-181.41	.16	-181.25
LY123	38.55.31	112.33.98	1434.	979586.73	980052.58	-23.29	-183.55	.08	-183.47
LY124	39. .28	112.21.15	1498.	979629.22	980092.20	-.59	-168.03	.88	-167.15
LY125	39. .28	112.22.28	1486.	979632.81	980092.20	-.94	-166.95	.70	-166.25
LY126	39. .89	112.22.29	1501.	979631.37	980092.73	1.97	-165.81	.73	-165.08
LY127	39. 1.83	112.22.29	1472.	979638.16	980093.56	-1.28	-165.73	.63	-165.11
LY128	39. 2.25	112.22.24	1459.	979641.30	980093.93	-2.45	-165.41	.57	-164.84
LY129	39. 2.26	112.21.72	1464.	979640.66	980093.95	-1.61	-165.17	.67	-164.50
LY130	39. 2.26	112.21.15	1482.	979636.66	980093.95	.12	-165.51	.80	-164.71
LY131	39. 2.98	112.21.72	1453.	979642.68	980094.59	-3.44	-165.83	.62	-165.22

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY132	39. 3.73	112.21.71	1454.	979642.30	980095.23	-4.31	-166.79	.54	-166.25
LY133	39. 4.42	112.21.19	1459.	979642.12	980095.84	-3.55	-166.56	.54	-166.02
LY134	39. 4.88	112.21.15	1455.	979641.95	980096.24	-5.25	-167.86	.52	-167.34
LY135	39. 4.86	112.22.28	1453.	979640.80	980096.23	-7.14	-169.47	.40	-169.07
LY136	39. 5.85	112.21.15	1455.	979641.84	980097.10	-6.43	-168.96	.46	-168.50
LY137	39. 5.75	112.22.27	1440.	979643.10	980097.02	-9.68	-170.54	.36	-170.18
LY138	39. 6.65	112.22.28	1440.	979646.20	980097.80	-7.10	-168.06	.33	-167.73
LY139	39. 6.64	112.16.00	1570.	979617.46	980097.79	4.17	-171.28	1.14	-170.14
LY140	39. 5.52	112.16.26	1558.	979619.93	980096.81	3.85	-170.23	1.46	-168.77
LY141	38.55.85	112.34.72	1436.	979584.50	980053.06	-25.46	-185.91	.05	-185.86
LY142	38.55.22	112.35.14	1448.	979577.38	980052.51	-28.11	-190.01	.05	-189.96
LY143	38.54.86	112.35.75	1469.	979576.40	980052.19	-22.53	-186.66	.02	-186.64
LY144	38.53.45	112.35.73	1481.	979574.20	980050.95	-19.62	-185.15	.07	-185.08
LY145	38.51.80	112.35.85	1489.	979568.13	980049.49	-21.85	-188.27	.14	-188.13
LY146	38.52.54	112.37.41	1524.	979558.47	980050.15	-21.29	-191.63	.15	-191.48
LY147	38.49.64	112.36.34	1494.	979563.53	980047.61	-23.10	-190.03	.18	-189.85
LY148	38.49.57	112.32.21	1435.	979587.63	980047.55	-17.19	-177.51	.52	-176.99
LY149	38.47.82	112.26.55	1528.	979566.95	980046.01	-7.55	-178.29	1.65	-176.64
LY150	39. .20	112.17.49	1619.	979599.60	980092.12	7.12	-173.80	1.82	-171.98
LY151	39. 4.84	112.15.80	1599.	979607.53	980096.20	4.76	-173.92	1.52	-172.40
LY152	39. 5.87	112.16.76	1533.	979625.98	980097.12	1.88	-169.41	1.13	-168.28
LY153	39. 5.87	112.17.57	1510.	979630.87	980097.12	-.28	-169.02	.95	-168.07
LY154	39. 5.75	112.18.89	1484.	979637.73	980097.02	-1.23	-167.10	.77	-166.33
LY155	39. 4.88	112.18.88	1499.	979635.73	980096.24	2.08	-165.43	.80	-164.63
LY156	39. 4.05	112.18.89	1520.	979631.24	980095.50	4.91	-164.99	.85	-164.14
LY157	39. 5.78	112.19.75	1468.	979641.77	980097.03	-2.27	-166.31	.66	-165.65
LY158	39. 5.76	112.20.39	1461.	979642.41	980097.02	-3.78	-167.03	.57	-166.46
LY159	39. 4.01	112.20.87	1470.	979640.43	980095.47	-1.35	-165.67	.63	-165.04
LY160	39. 3.12	112.20.21	1521.	979631.54	980094.69	6.23	-163.75	.92	-162.83
LY161	39. 1.21	112.21.15	1492.	979632.52	980093.01	-.03	-166.80	.83	-165.97
LY162	38.56.18	112.27.09	1429.	979599.81	980053.35	-12.50	-172.21	.48	-171.73
LY163	38.56.18	112.27.30	1428.	979599.80	980053.35	-12.99	-172.52	.46	-172.06
LY164	38.56.19	112.27.68	1426.	979599.34	980053.35	-13.82	-173.22	.42	-172.80

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY165	38.56.18	112.28.19	1426.	979598.77	980053.35	-14.68	-173.97	.37	-173.60
LY166	38.56.19	112.28.75	1424.	979598.11	980053.35	-15.71	-174.87	.32	-174.55
LY167	38.56.20	112.29.30	1423.	979598.08	980053.37	-16.32	-175.28	.29	-174.99
LY168	38.56.20	112.29.78	1422.	979597.79	980053.37	-16.70	-175.63	.27	-175.36
LY169	38.56.21	112.30.00	1423.	979597.75	980053.37	-16.55	-175.54	.25	-175.29
LY170	38.55.53	112.31.61	1454.	979588.05	980052.77	-16.06	-178.53	.14	-178.39
LY171	38.54.77	112.31.82	1457.	979585.74	980052.10	-16.71	-179.57	.19	-179.38
LY172	38.48.92	112.31.95	1439.	979585.26	980046.97	-17.66	-178.46	.64	-177.82
LY173	38.48.48	112.31.95	1443.	979583.40	980046.59	-18.02	-179.22	.71	-178.51
LY174	38.47.79	112.31.95	1449.	979581.77	980045.98	-17.06	-178.98	.87	-178.11
LY175	38.47.79	112.32.50	1444.	979581.57	980045.98	-18.77	-180.14	.80	-179.34
LY176	38.47.36	112.32.55	1451.	979579.95	980045.60	-17.74	-179.94	.89	-179.05
LY177	38.47.91	112.33.07	1444.	979581.15	980046.08	-19.47	-180.78	.69	-180.09
LY178	38.48.47	112.32.50	1439.	979583.20	980046.58	-19.33	-180.12	.65	-179.47
LY179	38.50.25	112.33.60	1434.	979586.61	980048.15	-18.85	-179.18	.36	-178.82
LY180	38.49.89	112.32.86	1434.	979587.78	980047.83	-17.60	-177.82	.43	-177.39
LY181	38.48.25	112.36.92	1515.	979556.95	980046.38	-22.05	-191.30	.24	-191.06
LY182	38.47.36	112.36.97	1533.	979554.08	980045.60	-18.60	-189.85	.32	-189.53
LY183	38.46.73	112.37.00	1549.	979550.57	980045.05	-16.37	-189.50	.36	-189.15
LY184	38.45.56	112.36.14	1540.	979551.24	980044.02	-17.41	-189.55	.57	-188.98
LY185	38.46.05	112.34.75	1483.	979567.18	980044.45	-19.48	-185.25	.85	-184.40
LY186	38.46.73	112.35.94	1522.	979559.13	980045.05	-16.09	-186.22	.49	-185.73
LY187	38.47.26	112.35.60	1512.	979563.56	980045.52	-15.19	-184.24	.45	-183.80
LY188	38.48.02	112.34.37	1445.	979579.05	980046.18	-21.07	-182.62	.55	-182.07
LY189	38.48.09	112.35.62	1517.	979563.15	980046.24	-14.96	-184.48	.39	-184.09
LY190	38.50.23	112.36.69	1494.	979564.62	980048.12	-22.61	-189.50	.13	-189.37
LY191	38.50.72	112.37.00	1494.	979564.70	980048.55	-22.88	-189.81	.14	-189.67
LY192	38.52.09	112.37.08	1511.	979560.93	980049.75	-22.57	-191.41	.12	-191.29
LY193	38.51.60	112.34.53	1465.	979578.32	980049.31	-18.95	-182.64	.17	-182.47
LY194	38.50.90	112.35.66	1483.	979572.26	980048.72	-18.96	-184.63	.15	-184.48
LY195	38.45.53	112.33.49	1516.	979564.96	980044.00	-11.29	-180.67	1.18	-179.49
LY196	38.45.36	112.32.53	1586.	979550.08	980043.84	-4.29	-181.53	1.52	-180.01
LY197	38.46.51	112.31.41	1517.	979567.20	980044.86	-9.43	-178.98	1.56	-177.42

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY198	38.46.67	112.30.65	1533.	979564.49	980045.00	-7.59	-178.83	1.29	-177.54
LY199	38.46.83	112.29.14	1541.	979561.84	980045.13	-7.59	-179.88	1.41	-178.47
LY200	38.46.98	112.28.03	1531.	979563.15	980045.27	-9.56	-180.68	1.64	-179.05
LY201	38.47.14	112.26.95	1527.	979564.91	980045.41	-12.55	-179.90	2.09	-177.82
LY202	38.47.74	112.27.33	1514.	979568.45	980045.94	-10.40	-179.54	1.50	-178.04
LY203	38.47.69	112.25.59	1547.	979569.94	980045.89	1.49	-171.40	2.00	-169.40
LY204	38.48.21	112.26.55	1521.	979569.27	980046.34	-7.74	-177.74	1.54	-176.20
LY205	38.46.82	112.26.65	1557.	979557.87	980045.13	-6.91	-180.85	2.72	-178.13
LY206	38.45.60	112.26.35	1680.	979528.45	980044.05	2.76	-184.96	3.59	-181.37
LY207	38.45.12	112.28.17	1663.	979530.62	980043.63	.28	-185.60	4.08	-181.52
LY208	38.47.31	112.25.19	1563.	979557.79	980045.55	-5.53	-180.15	2.34	-177.81
LY209	38.46.92	112.25.51	1579.	979552.98	980045.22	-4.91	-181.38	2.38	-179.00
LY210	38.45.61	112.25.32	1737.	979514.45	980044.07	6.52	-187.62	3.59	-184.03
LY211	38.49.11	112.25.21	1511.	979574.14	980047.14	-6.75	-175.59	1.93	-173.66
LY212	38.49.11	112.24.28	1534.	979567.36	980047.14	-6.48	-177.87	2.57	-175.30
LY213	38.49.89	112.23.76	1547.	979565.93	980047.83	-4.46	-177.35	2.84	-174.51
LY214	38.49.84	112.23.07	1600.	979553.81	980047.79	-.17	-178.98	3.67	-175.31
LY215	38.50.64	112.23.68	1553.	979567.19	980048.48	-2.17	-175.67	2.65	-173.03
LY216	38.51.38	112.22.93	1561.	979565.48	980049.14	-1.80	-176.29	3.27	-173.02
LY217	38.52.17	112.23.38	1519.	979577.09	980049.81	-3.85	-173.64	2.46	-171.18
LY218	38.52.38	112.24.82	1468.	979586.73	980050.00	-10.37	-174.37	1.56	-172.82
LY219	38.52.42	112.25.80	1455.	979589.43	980050.05	-11.48	-174.12	1.17	-172.95
LY220	38.52.42	112.26.36	1454.	979591.37	980050.05	-10.11	-172.54	1.00	-171.54
LY221	38.52.43	112.27.20	1455.	979592.01	980050.05	-9.10	-171.67	.81	-170.86
LY222	38.52.12	112.29.02	1457.	979590.40	980049.77	-9.67	-172.51	.55	-171.96
LY223	38.51.90	112.28.37	1458.	979590.87	980049.58	-8.92	-171.79	.65	-171.14
LY224	38.51.10	112.28.35	1459.	979590.07	980048.89	-8.66	-171.67	.73	-170.94
LY225	38.50.42	112.25.55	1480.	979582.25	980048.30	-9.29	-174.69	1.57	-173.12
LY226	38.49.77	112.26.35	1486.	979579.26	980047.73	-9.85	-175.92	1.35	-174.57
LY227	38.49.12	112.27.75	1489.	979578.78	980047.14	-8.88	-175.27	1.09	-174.18
LY228	38.49.15	112.28.31	1483.	979581.23	980047.17	-8.26	-173.99	.99	-173.00
LY229	38.49.78	112.28.32	1475.	979585.24	980047.73	-7.34	-172.15	.89	-171.26
LY230	38.51.10	112.26.39	1464.	979586.16	980048.89	-11.05	-174.61	1.17	-173.44

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY231	38.51.31	112.25.20	1471.	979584.88	980049.09	-10.28	-174.65	1.60	-173.05
LY232	38.51.31	112.24.41	1490.	979581.98	980049.09	-7.25	-173.78	2.03	-171.75
LY233	38.50.65	112.29.16	1461.	979589.30	980048.50	-8.38	-171.63	.66	-170.97
LY234	38.50.85	112.29.85	1459.	979588.82	980048.67	-9.59	-172.64	.59	-172.06
LY235	38.50.90	112.29.35	1462.	979588.61	980048.72	-8.91	-172.30	.62	-171.68
LY236	38.51.48	112.29.18	1467.	979589.25	980049.23	-7.29	-171.21	.59	-170.62
LY237	38.51.61	112.29.09	1465.	979589.72	980049.33	-7.38	-171.14	.59	-170.55
LY238	38.51.70	112.29.26	1461.	979590.28	980049.41	-8.32	-171.55	.56	-170.99
LY239	38.51.97	112.28.98	1459.	979590.46	980049.63	-9.02	-172.02	.58	-171.45
LY240	38.51.51	112.29.60	1460.	979589.95	980049.26	-8.68	-171.86	.54	-171.32
LY241	38.51.30	112.29.36	1491.	979583.24	980049.07	-5.59	-172.25	.81	-171.44
LY242	38.48.22	112.23.54	1611.	979549.48	980046.36	.12	-179.85	3.42	-176.43
LY243	38.48.34	112.22.91	1662.	979538.24	980046.46	4.78	-180.99	4.48	-176.52
LY244	38.48.23	112.24.10	1569.	979557.75	980046.37	-4.41	-179.75	2.88	-176.87
LY245	38.48.23	112.24.65	1547.	979562.88	980046.37	-6.24	-179.06	2.46	-176.60
LY246	38.48.23	112.25.49	1534.	979566.73	980046.37	-6.26	-177.67	1.91	-175.76
LY247	38.48.71	112.26.18	1514.	979571.99	980046.80	-7.67	-176.79	1.56	-175.23
LY248	38.48.70	112.26.39	1510.	979571.97	980046.78	-8.85	-177.58	1.50	-176.08
LY249	38.48.70	112.26.63	1507.	979572.09	980046.78	-9.68	-178.07	1.43	-176.64
LY250	38.48.70	112.26.92	1505.	979572.06	980046.78	-10.35	-178.50	1.35	-177.15
LY251	38.48.69	112.27.21	1501.	979572.66	980046.77	-10.78	-178.56	1.28	-177.28
LY252	38.48.68	112.27.35	1501.	979573.31	980046.77	-10.40	-178.08	1.28	-176.80
LY253	38.48.68	112.27.74	1496.	979575.45	980046.77	-9.68	-176.85	1.17	-175.68
LY254	38.48.92	112.27.75	1493.	979577.22	980046.97	-9.06	-175.88	1.13	-174.75
LY255	38.48.90	112.28.31	1487.	979579.23	980046.95	-8.95	-175.11	1.03	-174.08
LY256	38.48.90	112.28.01	1490.	979578.01	980046.95	-9.08	-175.61	1.08	-174.53
LY257	38.48.90	112.29.43	1479.	979580.07	980046.95	-10.51	-175.77	.89	-174.88
LY258	38.48.90	112.29.14	1476.	979580.56	980046.95	-10.87	-175.82	.96	-174.86
LY259	38.48.90	112.28.87	1477.	979580.27	980046.95	-10.76	-175.87	.99	-174.88
LY260	38.48.90	112.28.66	1480.	979580.03	980046.95	-10.18	-175.57	1.00	-174.57
LY261	38.49.35	112.29.15	1471.	979583.98	980047.35	-9.54	-173.88	.85	-173.03
LY262	38.48.22	112.26.93	1515.	979569.36	980046.36	-9.53	-178.81	1.44	-177.37
LY263	38.48.23	112.27.21	1509.	979569.80	980046.37	-10.79	-179.46	1.39	-178.07

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY264	38.48.23	112.27.54	1504.	979571.13	980046.37	-10.97	-179.09	1.31	-177.78
LY265	38.48.23	112.27.83	1500.	979572.67	980046.37	-10.92	-178.51	1.28	-177.23
LY266	38.48.23	112.28.03	1498.	979573.70	980046.37	-10.47	-177.84	1.22	-176.62
LY267	38.48.24	112.28.32	1497.	979574.78	980046.37	-9.78	-177.00	1.17	-175.83
LY268	38.48.23	112.28.60	1500.	979574.14	980046.37	-9.46	-177.04	1.18	-175.86
LY269	38.48.51	112.28.86	1502.	979572.97	980046.62	-10.04	-177.92	1.27	-176.65
LY270	38.49.76	112.25.78	1491.	979578.75	980047.71	-8.83	-175.45	1.58	-173.88
LY271	38.50.87	112.24.70	1488.	979582.30	980048.69	-7.10	-173.42	1.94	-171.48
LY272	38.50.98	112.29.15	1464.	979588.34	980048.79	-8.77	-172.33	.63	-171.70
LY273	38.50.66	112.29.78	1458.	979589.16	980048.50	-9.56	-172.43	.59	-171.84
LY274	38.51.99	112.29.87	1455.	979589.77	980049.66	-11.06	-173.59	.47	-173.12
LY275	38.51.53	112.30.82	1449.	979589.82	980049.27	-12.26	-174.22	.42	-173.80
LY276	38.51.80	112.31.19	1444.	979591.56	980049.49	-12.20	-173.60	.38	-173.22
LY277	38.49.34	112.29.98	1462.	979585.56	980047.35	-10.60	-173.98	.75	-173.23
LY278	38.47.79	112.29.13	1518.	979567.67	980045.98	-9.89	-179.51	1.12	-178.39
LY279	38.47.13	112.29.14	1532.	979564.21	980045.40	-8.49	-179.69	1.28	-178.41
LY280	38.47.13	112.29.74	1518.	979566.59	980045.40	-10.39	-180.01	1.24	-178.77
LY281	38.47.54	112.28.75	1518.	979567.81	980045.76	-9.43	-179.09	1.37	-177.72
LY282	38.48.90	112.29.70	1475.	979580.30	980046.95	-11.51	-176.32	.89	-175.43
LY283	38.48.90	112.29.98	1462.	979582.35	980046.95	-13.31	-176.73	.89	-175.84
LY284	38.48.90	112.30.25	1465.	979582.64	980046.95	-12.17	-175.90	.81	-175.09
LY285	38.48.90	112.30.53	1462.	979583.97	980046.95	-11.70	-175.11	.77	-174.34
LY286	38.48.90	112.30.81	1449.	979585.17	980046.95	-14.53	-176.49	.76	-175.73
LY287	38.48.91	112.31.08	1446.	979582.19	980046.97	-18.67	-180.21	.73	-179.48
LY288	38.48.91	112.31.38	1444.	979585.05	980046.97	-16.36	-177.71	.69	-177.02
LY289	38.48.91	112.31.66	1441.	979585.12	980046.97	-17.09	-178.17	.68	-177.49
LY290	38.48.92	112.32.22	1437.	979585.26	980046.97	-18.32	-178.88	.60	-178.28
LY291	38.48.92	112.32.49	1437.	979584.93	980046.97	-18.61	-179.21	.58	-178.63
LY292	38.48.91	112.32.78	1436.	979584.61	980046.97	-19.21	-179.71	.55	-179.16
LY293	38.48.91	112.33.09	1437.	979584.11	980046.97	-19.56	-180.09	.53	-179.56
LY294	38.48.91	112.33.36	1437.	979583.67	980046.97	-19.80	-180.40	.50	-179.90
LY295	38.48.91	112.33.61	1437.	979583.39	980046.97	-20.01	-180.63	.48	-180.15
LY296	38.48.90	112.33.93	1438.	979583.24	980046.95	-19.94	-180.64	.46	-180.18

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY297	38.48.90	112.34.19	1443.	979582.52	980046.95	-19.07	-180.35	.44	-179.91
LY298	38.48.91	112.34.50	1457.	979579.87	980046.97	-17.40	-180.24	.40	-179.84
LY299	38.48.91	112.34.78	1457.	979578.68	980046.97	-18.59	-181.43	.37	-181.06
LY300	38.48.91	112.35.05	1467.	979576.27	980046.97	-17.99	-181.93	.35	-181.58
LY301	38.48.91	112.35.31	1482.	979571.89	980046.97	-17.66	-183.31	2.40	-180.91
LY302	38.48.91	112.35.60	1489.	979568.98	980046.97	-18.43	-184.83	.27	-184.56
LY303	38.48.91	112.35.94	1492.	979566.19	980046.97	-20.46	-187.15	.25	-186.90
LY304	38.48.91	112.36.40	1497.	979562.37	980046.97	-22.68	-189.95	.21	-189.74
LY305	38.48.91	112.36.85	1500.	979560.51	980046.97	-23.69	-191.27	.19	-191.08
LY306	38.48.91	112.37.43	1498.	979559.52	980046.97	-25.24	-192.62	.18	-192.44
LY307	38.48.92	112.38.04	1491.	979558.54	980046.97	-28.35	-194.98	.16	-194.82
LY308	38.48.92	112.38.61	1491.	979558.29	980046.97	-28.64	-195.23	.17	-195.06
LY309	38.48.92	112.39.28	1482.	979557.74	980046.97	-31.84	-197.46	.13	-197.33
LY310	38.49.61	112.39.91	1466.	979562.72	980047.58	-32.44	-196.27	.08	-196.19
LY311	38.49.68	112.40.48	1464.	979562.02	980047.64	-33.85	-197.45	.06	-197.39
LY312	38.49.70	112.41.08	1462.	979561.41	980047.66	-35.24	-198.56	.05	-198.51
LY313	38.49.71	112.41.62	1461.	979561.36	980047.67	-35.57	-198.80	.04	-198.76
LY314	38.49.71	112.42.19	1458.	979561.46	980047.67	-36.41	-199.30	.03	-199.27
LY315	38.49.74	112.42.78	1457.	979561.17	980047.70	-36.82	-199.67	.02	-199.65
LY316	38.49.91	112.43.22	1456.	979560.97	980047.84	-37.47	-200.20	.00	-200.20
LY317	38.50.08	112.43.70	1458.	979561.24	980047.99	-36.96	-199.84	-.02	-199.86
LY318	38.50.08	112.44.50	1458.	979562.23	980047.99	-35.70	-198.67	-.03	-198.70
LY319	38.50.08	112.44.81	1460.	979564.16	980047.99	-33.19	-196.38	-.03	-196.41
LY320	38.51.07	112.38.13	1469.	979567.24	980048.87	-28.45	-192.55	.18	-192.37
LY321	38.51.88	112.38.22	1466.	979569.08	980049.56	-28.17	-191.95	.09	-191.86
LY322	38.52.03	112.39.53	1455.	979568.02	980049.70	-32.79	-195.37	-.01	-195.38
LY323	38.51.88	112.40.59	1455.	979566.37	980049.56	-34.35	-196.89	-.03	-196.92
LY324	38.51.56	112.42.51	1454.	979564.30	980049.29	-36.19	-198.73	-.05	-198.78
LY325	38.51.11	112.41.82	1456.	979564.41	980048.89	-35.25	-197.93	-.03	-197.96
LY326	38.50.66	112.41.14	1455.	979564.56	980048.50	-35.00	-197.57	.00	-197.57
LY327	38.50.30	112.40.52	1458.	979564.17	980048.20	-34.24	-197.11	.03	-197.08
LY328	38.50.92	112.39.62	1456.	979567.52	980048.73	-31.89	-194.60	.03	-194.57
LY329	38.52.30	112.40.20	1456.	979566.73	980049.93	-33.98	-196.65	-.03	-196.68

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY330	38.50.67	112.43.23	1457.	979562.26	980048.52	-36.75	-199.53	-.04	-199.57
LY331	38.50.15	112.41.83	1459.	979562.82	980048.06	-35.03	-198.09	.01	-198.08
LY332	38.51.06	112.40.48	1454.	979566.36	980048.85	-33.69	-196.24	.00	-196.24
LY333	38.48.27	112.39.90	1499.	979551.76	980046.40	-32.11	-199.63	.15	-199.48
LY334	38.47.80	112.43.32	1505.	979554.97	980045.99	-26.66	-194.81	.32	-194.49
LY335	38.47.25	112.42.76	1508.	979549.45	980045.52	-30.67	-199.20	.27	-198.93
LY336	38.46.54	112.43.08	1519.	979544.96	980044.88	-31.13	-200.89	.23	-200.66
LY337	38.46.29	112.43.69	1530.	979543.09	980044.66	-29.41	-200.39	.22	-200.17
LY338	38.45.89	112.44.68	1541.	979539.68	980044.30	-29.15	-201.33	.25	-201.08
LY339	38.46.60	112.44.84	1574.	979539.86	980044.93	-19.35	-195.24	.32	-194.92
LY340	38.45.42	112.43.44	1567.	979533.68	980043.89	-26.75	-201.82	.39	-201.43
LY341	38.46.85	112.42.02	1504.	979546.63	980045.15	-34.52	-202.54	.21	-202.33
LY342	38.49.61	112.38.08	1475.	979562.53	980047.58	-29.80	-194.65	.13	-194.52
LY343	38.47.93	112.39.88	1509.	979548.91	980046.11	-31.41	-200.08	.25	-199.83
LY344	38.46.67	112.39.73	1540.	979541.26	980045.00	-28.55	-200.63	.27	-200.36
LY345	38.45.73	112.40.08	1571.	979533.92	980044.17	-25.38	-200.96	.29	-200.67
LY346	38.46.48	112.40.83	1578.	979532.45	980044.83	-25.43	-201.76	.31	-201.45
LY347	38.45.25	112.38.65	1583.	979531.03	980043.75	-24.37	-201.21	.38	-200.83
LY348	38.45.82	112.38.78	1564.	979538.86	980044.24	-22.67	-197.47	.34	-197.13
LY349	38.45.96	112.37.78	1579.	979539.16	980044.37	-17.89	-194.36	.37	-193.99
LY350	38.45.61	112.36.99	1570.	979542.49	980044.07	-17.08	-192.53	.48	-192.05
LY351	38.46.17	112.38.12	1568.	979541.15	980044.55	-19.56	-194.77	.34	-194.43
LY352	38.47.38	112.38.13	1533.	979547.71	980045.62	-24.78	-196.11	.25	-195.86
LY353	38.48.22	112.37.98	1510.	979554.84	980046.36	-25.65	-194.35	8.23	-186.12
LY354	38.49.35	112.28.32	1480.	979582.69	980047.35	-7.92	-173.31	.96	-172.35
LY355	38.50.00	112.28.33	1476.	979585.72	980047.91	-6.58	-171.57	.86	-170.71
LY356	38.46.08	112.30.52	1580.	979554.62	980044.48	-2.16	-178.76	1.75	-177.01
LY357	38.48.23	112.25.88	1529.	979568.39	980046.37	-5.98	-176.91	1.75	-175.16
LY358	38.54.79	112.29.78	1472.	979588.10	980052.12	-9.82	-174.29	1.03	-173.26
LY359	39. 2.30	112.20.71	1507.	979631.65	980093.97	2.80	-165.63	.98	-164.66
LY360	39. 2.12	112.20.20	1571.	979619.60	980093.83	10.47	-165.05	1.39	-163.66
LY361	39. 2.09	112.19.78	1671.	979598.20	980093.80	20.12	-166.63	2.25	-164.38
LY362	39. 2.17	112.19.53	1716.	979588.73	980093.87	24.32	-167.41	3.21	-164.20

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY363	39. 1.82	112.17.18	1597.	979609.21	980093.55	8.62	-169.89	1.61	-168.28
LY364	39. 1.80	112.16.64	1630.	979601.48	980093.53	11.08	-171.11	1.82	-169.29
LY365	39. 1.73	112.16.04	1668.	979592.95	980093.48	14.35	-172.10	2.14	-169.96
LY366	39. 2.27	112.15.52	1672.	979593.00	980093.95	14.87	-171.92	2.25	-169.67
LY367	39. 2.26	112.15.14	1694.	979587.16	980093.95	15.90	-173.38	2.43	-170.95
LY368	39. 1.81	112.17.88	1576.	979615.52	980093.55	8.34	-167.78	1.33	-166.45
LY369	39. 1.01	112.15.53	1741.	979575.41	980092.84	19.92	-174.66	2.72	-171.95
LY370	39. 3.56	112.17.14	1562.	979616.75	980095.08	3.82	-170.78	1.31	-169.47
LY371	39. 3.56	112.16.64	1577.	979614.50	980095.08	5.98	-170.21	1.50	-168.71
LY372	39. 3.55	112.16.37	1584.	979613.22	980095.06	7.07	-169.97	1.70	-168.27
LY373	39. 3.56	112.15.80	1611.	979606.89	980095.08	9.09	-170.97	1.89	-169.08
LY374	39. 3.12	112.15.53	1646.	979599.84	980094.69	13.12	-170.85	2.07	-168.78
LY375	39. 3.13	112.18.87	1551.	979624.35	980094.70	8.41	-164.96	.98	-163.98
LY376	39. 3.56	112.18.32	1537.	979626.50	980095.08	5.84	-165.95	1.00	-164.95
LY377	39. 3.56	112.17.75	1548.	979622.10	980095.08	4.83	-168.18	1.13	-167.05
LY378	39. 3.57	112.17.49	1554.	979619.89	980095.08	4.42	-169.25	1.37	-167.88
LY379	39. 4.05	112.17.80	1539.	979624.70	980095.50	4.00	-167.93	1.05	-166.88
LY380	39. 1.40	112.24.56	1426.	979645.81	980093.19	-7.36	-166.70	.44	-166.26
LY381	39. 1.40	112.25.13	1419.	979645.09	980093.19	-10.14	-168.74	.35	-168.39
LY382	39. 1.40	112.25.70	1417.	979642.86	980093.19	-13.15	-171.46	.30	-171.16
LY383	39. 1.41	112.26.52	1413.	979640.88	980093.20	-16.13	-174.10	.24	-173.86
LY384	39. 1.40	112.27.10	1412.	979640.37	980093.19	-17.13	-174.90	.20	-174.70
LY385	39. 1.40	112.27.69	1411.	979641.73	980093.19	-16.07	-173.73	.18	-173.55
LY386	39. .43	112.27.10	1416.	979641.00	980092.32	-14.23	-172.51	.24	-172.27
LY387	39. .88	112.27.09	1414.	979640.65	980092.72	-15.83	-173.80	.22	-173.58
LY388	39. .73	112.26.23	1419.	979640.73	980092.59	-14.01	-172.56	.29	-172.27
LY389	39. .43	112.26.27	1422.	979640.56	980092.32	-12.97	-171.86	.29	-171.57
LY390	39. .06	112.26.15	1425.	979640.78	980092.00	-11.49	-170.72	.32	-170.40
LY391	39. 3.13	112.22.28	1451.	979642.04	980094.70	-4.76	-166.95	.50	-166.45
LY392	39. 4.00	112.22.28	1450.	979642.02	980095.46	-6.00	-168.03	.44	-167.59
LY393	39. 4.00	112.22.86	1451.	979641.80	980095.46	-6.02	-168.13	.41	-167.72
LY394	39. 4.00	112.23.41	1450.	979642.62	980095.46	-5.31	-167.36	.40	-166.96
LY395	39. 4.00	112.23.98	1430.	979646.98	980095.46	-7.05	-166.90	.31	-166.59

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY396	39. 4.00	112.24.55	1420.	979648.02	980095.46	-9.31	-167.97	.26	-167.71
LY397	39. 4.01	112.25.72	1412.	979645.47	980095.47	-14.32	-172.09	.19	-171.90
LY398	39. 3.13	112.24.55	1423.	979645.41	980094.70	-10.14	-169.16	.29	-168.87
LY399	39. 3.13	112.25.98	1415.	979642.70	980094.70	-15.38	-173.49	.19	-173.30
LY400	39. 2.25	112.25.69	1415.	979642.59	980093.93	-14.62	-172.76	.26	-172.50
LY401	39. 2.26	112.24.55	1422.	979644.77	980093.95	-10.30	-169.22	.34	-168.88
LY402	39. 2.26	112.23.42	1439.	979643.40	980093.95	-6.49	-167.29	.45	-166.84
LY403	39. 2.26	112.22.83	1450.	979642.51	980093.95	-4.01	-166.03	.51	-165.52
LY404	39. 1.41	112.27.96	1414.	979638.79	980093.20	-17.98	-176.01	.15	-175.86
LY405	39. 1.41	112.28.25	1416.	979637.97	980093.20	-18.12	-176.42	.13	-176.29
LY406	39. 1.40	112.28.53	1419.	979636.95	980093.19	-18.21	-176.83	.11	-176.72
LY407	39. 5.77	112.24.56	1419.	979647.55	980097.03	-11.74	-170.25	.19	-170.06
LY408	39. 6.67	112.24.53	1417.	979652.05	980097.82	-8.49	-166.84	.18	-166.66
LY409	39. 4.88	112.24.55	1417.	979648.02	980096.24	-10.93	-169.29	.23	-169.06
LY410	39. 4.88	112.23.40	1436.	979646.49	980096.24	-6.64	-167.10	.35	-166.75
LY411	39. 5.39	112.22.83	1436.	979643.83	980096.70	-9.85	-170.28	.34	-169.94
LY412	39. 5.77	112.23.40	1426.	979645.82	980097.03	-10.97	-170.42	.27	-170.15
LY413	39. 6.66	112.23.40	1428.	979649.10	980097.82	-8.06	-167.63	.24	-167.39
LY414	39. 4.08	112.26.37	1415.	979643.90	980095.53	-14.90	-173.06	.14	-172.92
LY415	39. 4.42	112.26.91	1412.	979644.67	980095.84	-15.40	-173.19	.10	-173.09
LY416	39. 4.43	112.28.05	1416.	979642.36	980095.85	-16.60	-174.80	.05	-174.75
LY417	39. 4.48	112.28.80	1424.	979639.09	980095.89	-17.37	-176.49	.04	-176.45
LY418	39. 4.33	112.29.75	1455.	979630.24	980095.75	-16.66	-179.20	.09	-179.11
LY419	39. 3.90	112.30.05	1454.	979629.25	980095.37	-17.56	-179.99	.14	-179.85
LY420	39. 3.15	112.29.65	1437.	979630.56	980094.71	-20.66	-181.25	.04	-181.21
LY421	39. 2.99	112.28.96	1433.	979633.86	980094.59	-18.47	-178.61	.05	-178.56
LY422	39. 2.75	112.28.27	1428.	979636.07	980094.37	-17.74	-177.27	.07	-177.20
LY423	39. 2.78	112.27.14	1421.	979639.00	980094.41	-17.00	-175.75	.13	-175.62
LY424	39. 3.58	112.26.54	1415.	979642.43	980095.09	-15.95	-174.09	.14	-173.95
LY425	39. 2.26	112.26.81	1419.	979638.98	980093.95	-17.07	-175.67	.17	-175.50
LY426	39. 1.40	112.28.80	1421.	979635.84	980093.19	-18.75	-177.58	.10	-177.48
LY427	39. 1.40	112.29.09	1420.	979635.15	980093.19	-19.74	-178.45	.09	-178.36
LY428	39. 1.41	112.29.28	1421.	979633.91	980093.20	-20.84	-179.64	.08	-179.56

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY429	39. 1.40	112.29.75	1421.	979632.91	980093.19	-21.80	-180.57	.07	-180.51
LY430	39. 1.52	112.30.10	1410.	979634.20	980093.29	-24.06	-181.59	.08	-181.51
LY431	39. 1.57	112.30.36	1407.	979634.15	980093.33	-24.90	-182.17	.07	-182.10
LY432	39. 1.63	112.30.63	1408.	979633.59	980093.39	-25.17	-182.55	.06	-182.49
LY433	39. 1.68	112.30.88	1409.	979632.87	980093.43	-25.73	-183.19	.05	-183.14
LY434	39. 1.74	112.31.15	1412.	979631.55	980093.49	-26.18	-183.97	.04	-183.93
LY435	39. 1.80	112.31.41	1417.	979630.42	980093.53	-25.91	-184.24	.02	-184.22
LY436	39. 1.89	112.31.78	1424.	979627.90	980093.62	-26.28	-185.41	-.01	-185.42
LY437	39. 1.98	112.32.04	1424.	979627.16	980093.70	-27.01	-186.16	-.02	-186.18
LY438	39. 2.08	112.32.27	1430.	979625.73	980093.78	-26.92	-186.65	-.03	-186.68
LY439	39. 2.26	112.32.58	1431.	979625.08	980093.95	-27.37	-187.24	-.05	-187.29
LY440	39. 2.24	112.32.84	1428.	979624.69	980093.93	-28.58	-188.15	-.05	-188.20
LY441	39. 2.03	112.32.82	1425.	979625.00	980093.73	-28.91	-188.18	-.05	-188.23
LY442	39. 1.86	112.33.12	1420.	979625.27	980093.59	-30.02	-188.74	-.05	-188.79
LY443	39. 1.70	112.33.31	1419.	979624.95	980093.45	-30.47	-189.09	-.06	-189.15
LY444	39. 1.53	112.33.47	1418.	979624.75	980093.30	-30.87	-189.37	-.06	-189.43
LY445	39. 1.33	112.33.64	1418.	979624.43	980093.12	-31.14	-189.58	-.06	-189.64
LY446	39. 1.24	112.34.06	1419.	979623.51	980093.04	-31.70	-190.24	-.06	-190.30
LY447	39. 1.14	112.34.53	1423.	979622.08	980092.95	-31.90	-190.86	-.08	-190.94
LY448	39. 1.04	112.35.01	1423.	979621.35	980092.86	-32.43	-191.43	-.10	-191.53
LY449	39. 1.16	112.35.51	1420.	979621.03	980092.97	-33.71	-192.40	-.11	-192.51
LY450	39. 1.17	112.35.83	1419.	979620.69	980092.98	-34.22	-192.88	-.12	-193.00
LY451	39. .90	112.36.11	1420.	979620.08	980092.75	-34.55	-193.20	-.12	-193.32
LY452	39. .61	112.36.45	1418.	979619.75	980092.48	-35.19	-193.62	-.11	-193.73
LY453	39. .41	112.36.86	1415.	979620.07	980092.31	-35.62	-193.73	-.13	-193.86
LY454	39. 2.03	112.27.68	1415.	979638.74	980093.73	-18.37	-176.48	.14	-176.34
LY455	39. 1.40	112.24.00	1437.	979644.41	980093.19	-5.37	-165.94	.52	-165.42
LY456	39. 1.39	112.22.87	1555.	979620.07	980093.17	6.73	-167.05	1.25	-165.81
LY457	39. .70	112.23.40	1540.	979622.68	980092.55	5.40	-166.70	.90	-165.80
LY458	38.59.63	112.24.16	1466.	979598.12	980056.38	-5.84	-169.67	.55	-169.12
LY459	39. 7.82	112.24.50	1421.	979655.42	980098.84	-5.00	-163.76	.16	-163.60
LY460	39. 9.41	112.24.53	1428.	979656.32	980100.23	-3.14	-162.76	.15	-162.61
LY461	39. 9.28	112.25.44	1415.	979657.91	980100.13	-5.70	-163.77	.10	-163.67

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY462	39. 8.86	112.25.60	1412.	979657.95	980099.76	-6.13	-163.90	.10	-163.80
LY463	39. 8.54	112.27.14	1405.	979652.47	980099.48	-13.49	-170.47	.02	-170.45
LY464	39. 9.32	112.26.48	1408.	979656.56	980100.16	-9.05	-166.47	.05	-166.42
LY465	39. 9.35	112.27.92	1405.	979652.66	980100.20	-14.11	-171.06	-.01	-171.07
LY466	39. 8.27	112.28.36	1407.	979650.24	980099.23	-15.13	-172.10	-.02	-172.12
LY467	39. 7.62	112.28.63	1405.	979650.66	980098.66	-14.36	-171.42	-.02	-171.44
LY468	39. 6.99	112.28.31	1405.	979651.10	980098.11	-13.36	-170.42	.00	-170.42
LY469	39. 6.69	112.26.77	1406.	979654.80	980097.84	-9.16	-166.28	.06	-166.22
LY470	39. 5.75	112.27.93	1407.	979648.03	980097.02	-14.86	-172.09	.03	-172.06
LY471	39. 6.65	112.21.14	1455.	979643.59	980097.80	-5.37	-167.91	.43	-167.49
LY472	39. 5.50	112.28.42	1409.	979645.76	980096.78	-16.19	-173.65	.02	-173.63
LY473	39. 5.36	112.26.94	1406.	979648.62	980096.66	-14.24	-171.33	.08	-171.25
LY474	39. 4.76	112.26.22	1409.	979646.56	980096.14	-14.84	-172.27	.14	-172.13
LY475	39. 3.51	112.30.72	1494.	979620.16	980095.03	-13.98	-180.87	.18	-180.69
LY476	39. 3.15	112.30.17	1449.	979627.81	980094.71	-19.75	-181.67	.04	-181.63
LY477	39. 2.77	112.29.78	1439.	979630.59	980094.39	-19.84	-180.61	.02	-180.59
LY478	39. 2.52	112.29.59	1433.	979631.77	980094.17	-20.06	-180.23	.04	-180.19
LY479	39. 5.59	112.31.72	1461.	979629.17	980096.87	-16.79	-180.07	-.05	-180.12
LY480	39. 5.88	112.30.55	1438.	979636.20	980097.12	-17.17	-177.85	-.04	-177.89
LY481	39. 6.12	112.29.22	1416.	979644.24	980097.34	-16.10	-174.34	-.01	-174.35
LY482	39. 7.97	112.29.29	1406.	979649.84	980098.97	-15.32	-172.41	-.04	-172.45
LY483	39. 7.56	112.30.83	1443.	979638.06	980098.60	-15.19	-176.45	-.06	-176.50
LY484	39. 7.23	112.31.92	1451.	979634.96	980098.31	-15.73	-177.82	.00	-177.82
LY485	39. 7.16	112.34.44	1445.	979628.16	980098.26	-24.07	-185.58	-.07	-185.65
LY486	39. 7.01	112.34.88	1437.	979627.85	980098.12	-26.89	-187.44	-.10	-187.54
LY487	38.52.28	112.27.90	1455.	979591.95	980049.91	-9.03	-171.59	.69	-170.90
LY488	38.52.20	112.28.47	1455.	979591.53	980049.84	-9.29	-171.88	.61	-171.27
LY489	38.52.11	112.29.58	1457.	979589.80	980049.77	-10.47	-173.24	.50	-172.74
LY490	38.51.81	112.30.39	1453.	979589.63	980049.51	-11.51	-173.86	.43	-173.43
LY491	38.52.73	112.27.52	1447.	979593.78	980050.30	-9.84	-171.59	.72	-170.87
LY492	38.52.82	112.28.37	1445.	979593.37	980050.39	-10.99	-172.50	.58	-171.92
LY493	38.52.89	112.28.93	1444.	979593.09	980050.45	-11.63	-173.03	.50	-172.53
LY494	38.52.96	112.29.44	1443.	979593.03	980050.51	-12.13	-173.39	.44	-172.95

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY495	38.53.61	112.28.80	1433.	979595.59	980051.08	-13.12	-173.32	.48	-172.84
LY496	38.54.21	112.29.38	1430.	979596.80	980051.62	-13.61	-173.37	.38	-172.99
LY497	38.53.76	112.29.70	1431.	979595.62	980051.21	-13.89	-173.83	.38	-173.45
LY498	38.53.33	112.29.69	1435.	979593.99	980050.83	-13.92	-174.30	.40	-173.90
LY499	38.54.63	112.30.13	1428.	979597.74	980051.98	-13.45	-173.09	.32	-172.77
LY500	38.55.78	112.29.65	1425.	979597.27	980052.99	-16.00	-175.23	.29	-174.94
LY501	38.55.59	112.30.38	1430.	979596.83	980052.83	-14.77	-174.55	.30	-174.25
LY502	38.55.90	112.30.80	1431.	979595.78	980053.10	-15.62	-175.57	.22	-175.35
LY503	38.58.17	112.30.44	1439.	979595.35	980055.10	-15.81	-176.56	.19	-176.37
LY504	38.57.23	112.27.91	1420.	979600.92	980054.27	-15.04	-173.76	.34	-173.42
LY505	38.56.83	112.27.91	1422.	979600.05	980053.92	-15.09	-173.98	.36	-173.62
LY506	38.56.52	112.37.49	1432.	979579.02	980053.64	-32.75	-192.75	-.07	-192.82
LY507	38.56.50	112.38.06	1430.	979578.64	980053.63	-33.77	-193.54	-.07	-193.61
LY508	38.56.49	112.39.18	1427.	979578.66	980053.62	-34.67	-194.10	-.08	-194.18
LY509	38.56.71	112.40.06	1426.	979579.55	980053.82	-34.37	-193.66	-.11	-193.77
LY510	39. 1.33	112.31.13	1409.	979632.11	980093.12	-26.07	-183.58	.05	-183.53
LY511	39. .83	112.31.75	1409.	979630.91	980092.67	-26.98	-184.45	.03	-184.42
LY512	39. .10	112.31.33	1412.	979632.74	980092.03	-23.62	-181.38	.07	-181.31
LY513	38.59.25	112.30.61	1425.	979597.69	980056.05	-18.54	-177.81	.08	-177.73
LY514	39. .45	112.33.51	1418.	979625.14	980092.34	-29.53	-188.02	-.04	-188.06
LY515	39. 1.59	112.32.49	1423.	979626.03	980093.34	-28.34	-187.30	-.03	-187.33
LY516	39. 3.03	112.34.49	1429.	979621.90	980094.62	-31.80	-191.46	-.10	-191.56
LY517	39. 5.81	112.34.35	1430.	979629.51	980097.06	-26.22	-186.04	-.11	-186.15
LY518	39. 6.40	112.34.22	1439.	979629.05	980097.59	-24.40	-185.23	-.10	-185.33
LY519	39. 6.46	112.33.96	1442.	979629.55	980097.64	-23.07	-184.23	-.08	-184.31
LY520	39. 6.54	112.33.69	1443.	979630.18	980097.70	-22.24	-183.49	-.05	-183.54
LY521	39. 6.56	112.33.43	1444.	979630.62	980097.73	-21.45	-182.84	-.03	-182.87
LY522	39. 6.59	112.33.16	1453.	979629.14	980097.74	-20.12	-182.53	-.02	-182.55
LY523	39. 6.71	112.32.91	1458.	979629.23	980097.86	-18.73	-181.65	.02	-181.63
LY524	39. 6.83	112.32.65	1465.	979628.62	980097.96	-17.39	-181.05	.04	-181.01
LY525	39. 6.97	112.32.40	1461.	979630.56	980098.08	-16.59	-179.89	.08	-179.81
LY526	39. 7.09	112.32.22	1455.	979633.05	980098.20	-16.19	-178.77	.06	-178.71
LY527	39. 7.34	112.31.67	1449.	979636.06	980098.41	-15.20	-177.12	-.02	-177.14

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY528	39. 7.38	112.31.41	1447.	979636.93	980098.45	-15.10	-176.76	-.04	-176.80
LY529	39. 7.46	112.31.15	1447.	979637.20	980098.52	-14.74	-176.44	-.05	-176.49
LY530	39. 7.59	112.34.03	1446.	979630.44	980098.63	-22.08	-183.62	.54	-183.08
LY531	39. 8.27	112.33.52	1445.	979633.43	980099.23	-19.73	-181.29	.43	-180.86
LY532	39. 8.69	112.32.62	1438.	979637.09	980099.61	-18.75	-179.44	-.01	-179.45
LY533	39. 9.05	112.31.95	1414.	979644.67	980099.93	-19.02	-176.99	-.04	-177.03
LY534	39. 8.23	112.31.94	1440.	979637.39	980099.20	-17.30	-178.26	.02	-178.24
LY535	39. 9.65	112.31.17	1412.	979648.73	980100.45	-16.05	-173.81	-.09	-173.90
LY536	39.10.11	112.30.43	1412.	979652.87	980100.87	-12.22	-170.02	-.09	-170.11
LY537	39.10.29	112.28.96	1406.	979657.71	980101.02	-9.52	-166.60	-.04	-166.64
LY538	39.10.30	112.26.08	1413.	979660.15	980101.02	-4.73	-162.66	1.86	-160.80
LY539	39. 9.29	112.23.14	1444.	979652.76	980100.13	-1.91	-163.22	.22	-163.00
LY540	39. 8.55	112.22.73	1445.	979649.56	980099.48	-4.08	-165.52	.39	-165.13
LY541	39. 7.96	112.21.63	1453.	979646.00	980098.97	-4.60	-166.96	.33	-166.63
LY542	39.12.25	112.29.95	1398.	979662.81	980102.76	-8.50	-164.73	-.08	-164.81
LY543	39.13.00	112.30.46	1394.	979664.44	980103.41	-8.65	-164.48	-.10	-164.58
LY544	39.13.67	112.31.18	1393.	979663.95	980104.02	-10.13	-165.81	-.12	-165.93
LY545	39.14.28	112.31.99	1393.	979664.02	980104.55	-10.78	-166.40	-.13	-166.53
LY546	39.12.87	112.28.49	1402.	979667.97	980103.30	-2.57	-159.28	-.03	-159.31
LY547	39.12.83	112.24.94	1439.	979664.30	980103.27	5.18	-155.65	.14	-155.51
LY548	39.13.70	112.24.25	1450.	979664.66	980104.04	8.16	-153.90	.25	-153.65
LY549	39.12.82	112.23.99	1450.	979662.60	980103.26	6.69	-155.30	.22	-155.08
LY550	39.12.83	112.22.86	1474.	979657.19	980103.27	8.69	-155.99	.33	-155.66
LY551	39.12.81	112.19.57	1572.	979633.92	980103.26	15.64	-159.98	.75	-159.23
LY552	39.14.22	112.20.40	1580.	979637.47	980104.49	20.67	-155.93	.84	-155.09
LY553	39.14.58	112.22.28	1520.	979653.05	980104.81	17.32	-152.54	.54	-152.00
LY554	39.14.59	112.22.84	1503.	979657.16	980104.83	16.04	-151.88	.46	-151.42
LY555	39.10.39	112.25.49	1423.	979660.03	980101.11	-2.12	-161.07	.10	-160.97
LY556	39. 7.52	112.20.03	1469.	979642.23	980098.58	-3.13	-167.28	.50	-166.78
LY557	39. 8.41	112.20.03	1476.	979642.20	980099.36	-1.62	-166.58	.50	-166.08
LY558	39. 9.28	112.20.03	1476.	979641.70	980100.13	-2.90	-167.86	.48	-167.38
LY559	39. 9.28	112.18.91	1497.	979637.26	980100.13	-.95	-168.22	.62	-167.60
LY560	39. 9.28	112.18.35	1512.	979634.16	980100.13	.55	-168.39	.67	-167.72

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY561	39. 9.28	112.16.67	1557.	979625.00	980100.13	5.41	-168.60	.89	-167.71
LY562	39. 9.28	112.15.52	1599.	979617.51	980100.13	10.72	-167.93	1.11	-166.82
LY563	39.10.12	112.15.83	1614.	979615.32	980100.87	12.60	-167.79	1.09	-166.70
LY564	39.11.08	112.15.82	1656.	979608.52	980101.73	17.81	-167.24	1.28	-165.96
LY566	39. 8.40	112.16.38	1548.	979624.02	980099.35	2.30	-170.66	.88	-169.02
LY565	39. 8.85	112.16.68	1546.	979625.47	980099.74	2.89	-169.90	.93	-169.73
LY567	39. 7.51	112.16.35	1546.	979623.09	980098.56	1.58	-171.17	1.02	-170.15
LY568	39. 7.51	112.15.53	1571.	979616.72	980098.56	3.03	-172.55	1.16	-171.39
LY569	39. 8.18	112.15.52	1570.	979617.98	980099.16	3.27	-172.18	1.10	-171.08
LY570	39. 7.73	112.17.21	1527.	979628.08	980098.77	.54	-170.10	.81	-169.29
LY571	39.14.65	112.27.23	1420.	979670.93	980104.87	4.19	-154.47	.03	-154.44
LY572	39.13.93	112.27.88	1415.	979670.73	980104.24	3.04	-155.06	-.01	-155.07
LY573	39.11.94	112.22.97	1462.	979655.34	980102.48	3.87	-159.45	.28	-159.17
LY574	39.11.93	112.22.30	1473.	979652.92	980102.47	5.13	-159.51	.34	-159.18
LY575	39.11.93	112.21.17	1497.	979647.67	980102.47	7.22	-160.08	.45	-159.63
LY576	39.11.94	112.18.80	1566.	979632.16	980102.48	12.95	-162.05	.95	-161.10
LY577	39.12.83	112.16.90	1658.	979614.54	980103.27	22.96	-162.33	1.24	-161.09
LY578	39.12.70	112.16.23	1693.	979605.95	980103.16	25.29	-163.91	1.19	-162.73
LY579	39.12.53	112.15.18	1730.	979595.16	980103.01	26.03	-167.30	1.18	-166.12
LY580	39.13.45	112.16.10	1721.	979598.36	980103.80	25.62	-166.69	1.55	-165.14
LY581	39.13.88	112.15.88	1767.	979588.87	980104.19	29.95	-167.50	1.90	-165.60
LY582	39.14.21	112.15.30	1820.	979578.02	980104.48	35.13	-168.26	2.35	-165.91
LY583	39.11.06	112.18.17	1568.	979628.14	980101.70	10.38	-164.86	.98	-163.88
LY584	39.10.16	112.17.55	1559.	979626.95	980100.91	7.24	-167.01	.84	-166.17
LY585	39.10.33	112.22.18	1462.	979648.79	980101.05	-1.16	-164.51	.30	-164.21
LY586	39.10.64	112.24.00	1447.	979655.88	980101.33	1.04	-160.64	.16	-160.48
LY587	39. 6.25	112.36.62	1401.	979628.99	980097.45	-36.07	-192.65	-.17	-192.82
LY588	39. 6.40	112.37.13	1400.	979628.29	980097.59	-37.28	-193.72	-.18	-193.90
LY589	39. 6.24	112.38.18	1400.	979627.17	980097.44	-38.25	-194.69	-.20	-194.89
LY590	39. 6.47	112.39.31	1397.	979627.84	980097.64	-38.75	-194.83	-.21	-195.04
LY591	39. 5.87	112.38.74	1398.	979627.86	980097.12	-37.73	-193.99	-.20	-194.19
LY592	39. 5.62	112.39.58	1399.	979628.55	980096.90	-36.72	-193.02	-.20	-193.22
LY593	39. 5.56	112.39.97	1398.	979629.27	980096.84	-36.32	-192.49	-.21	-192.70

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY594	39. 5.80	112.41.00	1395.	979631.81	980097.06	-34.75	-190.64	-.22	-190.86
LY595	39. 6.14	112.42.03	1399.	979634.52	980097.35	-31.19	-187.50	-.23	-187.73
LY596	39. 6.63	112.43.03	1398.	979637.06	980097.79	-29.48	-185.64	-.23	-185.87
LY597	39. 7.19	112.44.25	1396.	979640.43	980098.28	-27.15	-183.12	-.24	-183.36
LY598	39. 6.37	112.43.68	1399.	979638.62	980097.55	-27.30	-183.60	-.24	-183.84
LY599	39. 5.85	112.42.53	1400.	979635.79	980097.10	-29.30	-185.74	-.23	-185.97
LY600	39. 5.46	112.41.86	1400.	979634.65	980096.76	-30.21	-186.60	-.22	-186.82
LY601	39. 4.90	112.41.61	1401.	979634.23	980096.26	-29.85	-186.34	-.21	-186.55
LY602	39. 4.00	112.41.00	1403.	979631.55	980095.46	-31.02	-187.80	-.21	-188.01
LY603	39. 4.83	112.41.12	1399.	979632.62	980096.20	-31.75	-188.14	-.21	-188.35
LY604	39. 4.58	112.40.48	1398.	979630.68	980095.98	-33.93	-190.15	-.21	-190.36
LY605	39. 7.88	112.36.58	1397.	979632.23	980098.90	-35.60	-191.70	-.17	-191.87
LY606	39. 8.25	112.37.20	1396.	979631.62	980099.22	-36.91	-192.87	-.19	-193.06
LY607	39. 5.86	112.37.10	1400.	979628.41	980097.10	-36.69	-193.12	-.18	-193.30
LY608	39. 8.46	112.36.92	1395.	979632.89	980099.41	-35.92	-191.84	-.19	-192.03
LY609	39. 9.34	112.36.93	1394.	979635.80	980100.18	-34.24	-190.00	-.19	-190.19
LY610	39.10.11	112.37.03	1393.	979638.25	980100.87	-32.67	-188.36	-.21	-188.57
LY611	39.11.09	112.38.06	1392.	979639.71	980101.73	-32.44	-188.00	-.22	-188.22
LY612	39. 4.07	112.41.90	1402.	979634.01	980095.53	-28.96	-185.59	-.21	-185.80
LY613	39. 3.98	112.42.67	1403.	979635.12	980095.45	-27.45	-184.21	-.21	-184.42
LY614	39. 3.88	112.43.50	1401.	979637.39	980095.35	-25.57	-182.15	-.21	-182.36
LY615	39. 3.78	112.44.40	1401.	979639.96	980095.27	-23.11	-179.61	-.21	-179.82
LY616	39. 5.53	112.44.99	1399.	979642.85	980096.81	-22.23	-178.57	-.23	-178.80
LY617	39. 6.39	112.44.66	1398.	979641.50	980097.57	-24.72	-180.92	-.24	-181.16
LY618	39. 3.29	112.41.63	1408.	979631.70	980094.83	-28.58	-185.93	-.20	-186.13
LY619	39. 2.59	112.42.24	1410.	979632.07	980094.23	-27.04	-184.61	-.20	-184.81
LY620	39. 1.88	112.42.85	1411.	979631.79	980093.61	-26.42	-184.09	-.20	-184.29
LY621	39. 1.45	112.44.82	1415.	979635.62	980093.23	-21.08	-179.15	-.19	-179.34
LY622	39. 1.46	112.43.70	1411.	979633.21	980093.24	-24.50	-182.24	-.19	-182.43
LY623	39. .42	112.44.14	1415.	979631.83	980092.32	-23.78	-181.92	-.18	-182.10
LY624	39. .58	112.43.13	1415.	979629.48	980092.45	-26.37	-184.46	-.18	-184.64
LY625	39. 1.45	112.42.57	1412.	979630.09	980093.23	-27.27	-185.10	-.19	-185.29
LY626	39. 1.44	112.41.46	1411.	979627.48	980093.21	-30.24	-187.94	-.18	-188.12

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY627	39. 1.43	112.40.32	1412.	979624.59	980093.21	-32.81	-190.65	-.18	-190.83
LY628	39. 2.03	112.40.89	1411.	979627.39	980093.73	-30.95	-188.61	-.19	-188.80
LY629	39. 2.67	112.40.12	1407.	979626.67	980094.30	-33.44	-190.68	-.19	-190.87
LY630	39. 3.33	112.39.32	1405.	979625.54	980094.87	-35.81	-192.80	-.19	-192.99
LY631	39. 3.10	112.38.65	1406.	979623.95	980094.67	-36.84	-193.96	-.18	-194.14
LY632	39. 2.22	112.38.43	1407.	979622.03	980093.91	-37.80	-194.99	-.16	-195.15
LY633	39. 3.60	112.39.85	1402.	979627.50	980095.11	-34.85	-191.56	-.19	-191.75
LY634	39. 3.66	112.39.02	1403.	979626.03	980095.16	-36.09	-192.90	-.19	-193.09
LY635	39. 4.15	112.38.18	1405.	979626.46	980095.60	-35.72	-192.67	-.18	-192.85
LY636	39. 4.93	112.38.04	1400.	979627.89	980096.29	-36.30	-192.77	-.19	-192.96
LY637	39. 4.70	112.36.66	1401.	979628.64	980096.09	-35.15	-191.69	-.16	-191.85
LY638	39. 8.25	112.37.74	1396.	979630.59	980099.22	-37.94	-193.90	-.20	-194.10
LY639	39. 8.99	112.37.76	1395.	979632.71	980099.87	-36.75	-192.61	-.21	-192.82
LY640	39. 8.90	112.38.60	1394.	979631.34	980099.79	-38.23	-194.02	-.22	-194.24
LY641	39.10.61	112.38.73	1394.	979636.98	980101.30	-34.29	-190.02	-.22	-190.24
LY642	39.11.38	112.39.12	1392.	979638.86	980101.98	-33.55	-189.11	-.22	-189.33
LY643	39.11.96	112.38.61	1393.	979641.25	980102.50	-31.40	-187.06	-.23	-187.29
LY644	39.13.48	112.38.58	1394.	979645.70	980103.84	-27.92	-183.70	-.23	-183.93
LY645	39.13.50	112.39.20	1395.	979644.37	980103.85	-28.97	-184.87	-.24	-185.11
LY646	39.13.02	112.39.40	1394.	979642.98	980103.43	-30.32	-186.08	-.23	-186.31
LY647	39.12.85	112.39.86	1394.	979642.44	980103.28	-30.71	-186.47	-.23	-186.70
LY648	39.13.47	112.40.09	1393.	979644.37	980103.84	-29.73	-185.34	-.24	-185.58
LY649	39.13.08	112.40.58	1392.	979643.23	980103.48	-30.69	-186.24	-.24	-186.48
LY650	39. 8.37	112.43.49	1394.	979639.45	980099.32	-29.64	-185.43	-.25	-185.68
LY651	39. 8.88	112.42.96	1406.	979637.08	980099.77	-28.89	-185.98	-.19	-186.17
LY652	39. 9.92	112.42.52	1391.	979640.45	980100.69	-30.96	-186.41	-.25	-186.66
LY653	39.11.51	112.41.54	1393.	979639.19	980102.10	-33.07	-188.72	-.24	-188.96
LY654	39.14.68	112.39.56	1395.	979646.81	980104.90	-27.57	-183.47	-.25	-183.72
LY655	39.14.60	112.38.02	1394.	979649.46	980104.83	-25.14	-180.93	-.23	-181.16
LY656	39.14.70	112.39.16	1397.	979646.94	980104.91	-26.81	-182.94	-.24	-183.18
LY657	39.14.60	112.40.28	1395.	979646.30	980104.83	-28.11	-183.97	-.25	-184.22
LY658	39.14.60	112.41.40	1394.	979646.75	980104.83	-27.95	-183.71	-.25	-183.96
LY659	39.14.60	112.42.53	1392.	979648.53	980104.83	-26.63	-182.22	-.25	-182.47

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY660	39.14.59	112.43.65	1391.	979649.42	980104.83	-26.02	-181.51	-.25	-181.76
LY661	39.14.60	112.44.67	1393.	979650.76	980104.83	-24.13	-179.82	.07	-179.75
LY662	39.13.82	112.43.33	1392.	979647.94	980104.14	-26.64	-182.19	-.11	-182.30
LY663	39.13.35	112.42.47	1393.	979646.53	980103.72	-27.22	-182.93	-.23	-183.16
LY664	39.12.32	112.42.67	1404.	979642.56	980102.82	-26.90	-183.85	.48	-183.37
LY665	39.11.24	112.42.76	1412.	979639.27	980101.85	-26.72	-184.55	-.23	-184.78
LY666	39.11.64	112.44.02	1430.	979638.20	980102.22	-22.69	-182.50	-.21	-182.70
LY667	39.12.31	112.44.58	1451.	979635.68	980102.80	-19.27	-181.47	.83	-180.64
LY668	39.10.56	112.44.08	1400.	979642.59	980101.26	-26.57	-183.04	-.10	-183.14
LY669	39.10.27	112.43.28	1394.	979642.61	980101.01	-28.38	-184.09	-.24	-184.33
LY670	39. 9.50	112.43.41	1394.	979641.67	980100.33	-28.64	-184.35	-.25	-184.60
LY671	39.10.88	112.42.08	1407.	979637.25	980101.55	-30.22	-187.40	-.11	-187.51
LY672	39.13.73	112.41.41	1392.	979645.75	980104.05	-28.65	-184.23	-.25	-184.48
LY673	39. 7.59	112.45.90	1394.	979646.37	980098.63	-21.93	-177.76	-.23	-177.99
LY674	39. 7.60	112.47.01	1394.	979651.41	980098.65	-17.11	-172.86	-.24	-173.10
LY675	38.45.25	112.21.91	1684.	979517.80	980043.75	-6.23	-194.46	8.10	-186.36
LY676	38.50.46	112.22.19	1700.	979535.52	980048.33	11.85	-178.13	4.63	-173.50
LY677	38.50.35	112.21.53	1789.	979515.45	980048.23	19.28	-180.66	7.43	-173.23
LY678	38.50.25	112.20.49	1928.	979482.03	980048.15	28.76	-186.68	11.45	-175.24
LY679	38.50.24	112.19.98	2008.	979462.35	980048.13	33.95	-190.45	13.03	-177.42
LY700	38.58.92	112.47.64	1438.	979598.32	980055.76	-13.58	-174.31	-.14	-174.45
LY701	38.57.90	112.45.43	1422.	979594.87	980054.85	-21.16	-180.09	-.14	-180.23
LY702	38.57.31	112.44.68	1423.	979591.34	980054.34	-23.72	-182.82	-.14	-182.96
LY703	38.56.88	112.43.83	1424.	979588.20	980053.97	-26.19	-185.40	-.12	-185.52
LY704	38.56.68	112.42.66	1424.	979585.10	980053.79	-29.30	-188.43	-.10	-188.53
WI001	38.58.28	112.21.12	1521.	979583.66	980055.19	-2.22	-172.20	1.15	-171.05
WI016	38.58.75	112.23.21	1469.	979597.99	980055.61	-4.39	-168.54	.73	-167.81
WI020	38.59.63	112.23.72	1465.	979600.22	980056.38	-3.98	-167.75	.57	-167.18
WI021	38.59.85	112.22.30	1483.	979597.12	980056.57	-1.62	-167.44	.73	-166.71
WI022	38.59.82	112.21.17	1502.	979592.66	980056.55	-.32	-168.21	.92	-167.29
WI023	38.49.11	112.26.01	1504.	979574.79	980047.14	-8.32	-176.38	1.57	-174.81
WI026	38.46.48	112.24.68	1646.	979537.87	980044.83	.92	-183.02	2.90	-180.13
WI031	38.49.55	112.28.32	1477.	979584.61	980047.52	-7.16	-172.22	.94	-171.28

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
WI037	38.47.31	112.23.59	1663.	979535.84	980045.55	3.59	-182.30	3.60	-178.70
WI038	38.45.26	112.22.05	1699.	979517.60	980043.75	-1.71	-191.65	7.20	-184.45
WI039	38.47.35	112.26.21	1539.	979562.29	980045.60	-8.45	-180.44	1.96	-178.48
WI040	38.46.27	112.27.02	1588.	979550.34	980044.64	-4.29	-181.76	2.34	-179.42
WI041	38.46.90	112.28.58	1540.	979562.78	980045.19	-7.17	-179.29	1.50	-177.79
WI042	38.46.70	112.29.99	1530.	979565.36	980045.02	-7.53	-178.53	1.40	-177.13
WI043	38.51.76	112.26.93	1456.	979590.23	980049.46	-9.86	-172.62	.94	-171.68
WI045	38.52.13	112.29.01	1457.	979589.36	980049.78	-9.68	-173.57	.59	-172.98
WI047	38.54.21	112.29.17	1429.	979596.87	980051.62	-13.76	-173.48	.40	-173.08
WI049	38.56.34	112.29.91	1423.	979597.93	980053.48	-16.53	-175.54	.31	-175.23
WI051	38.49.56	112.32.12	1435.	979587.73	980047.54	-17.03	-177.40	.53	-176.87
WI055	38.46.56	112.32.52	1482.	979573.98	980044.90	-13.64	-179.26	1.11	-178.15
WI056	38.46.08	112.32.53	1508.	979567.66	980044.48	-11.36	-179.94	1.35	-178.59
WI059	38.48.91	112.34.65	1455.	979579.47	980046.97	-18.61	-181.19	.40	-180.79
WI065	38.45.18	112.37.60	1606.	979532.64	980043.69	-15.41	-194.92	.50	-194.42
WI067	38.45.44	112.44.57	1562.	979533.10	980043.91	-28.80	-203.37	.37	-203.00
WI069	38.48.10	112.40.30	1496.	979551.95	980046.26	-32.72	-199.90	.27	-199.63
WI076	38.50.91	112.37.00	1508.	979561.73	980048.72	-21.45	-190.06	.21	-189.85
WI079	38.56.13	112.31.11	1429.	979595.35	980053.31	-16.88	-176.63	.27	-176.36
WI083	38.58.82	112.31.38	1429.	979595.24	980055.67	-19.34	-179.10	.06	-179.04
WI086	38.59.51	112.34.55	1423.	979586.23	980056.28	-30.85	-189.92	-.06	-189.98
WI089	38.55.87	112.37.27	1443.	979576.86	980053.08	-30.89	-192.18	-.05	-192.23
WI094	38.52.67	112.33.07	1433.	979591.39	980050.27	-16.75	-176.88	.24	-176.64
WI099	38.51.80	112.41.45	1455.	979565.05	980049.49	-35.55	-198.13	-.04	-198.17
WI102	38.53.81	112.37.76	1465.	979571.23	980051.26	-27.93	-191.67	.09	-191.58
WI103	38.54.34	112.38.10	1458.	979571.33	980051.72	-30.28	-193.30	-.01	-193.31
WI104	38.51.12	112.34.75	1465.	979576.91	980048.91	-20.00	-183.71	.18	-183.53
WI105	38.51.99	112.34.40	1460.	979579.43	980049.66	-19.74	-182.90	.15	-182.75
WI108	38.48.23	112.24.66	1547.	979562.54	980046.37	-6.53	-179.40	2.47	-176.93
WI112	38.52.60	112.23.82	1493.	979582.48	980050.19	-6.87	-173.77	2.00	-171.77
WI113	38.51.71	112.22.99	1554.	979567.92	980049.41	-1.93	-175.62	3.01	-172.61
WI116	38.53.70	112.22.64	1549.	979573.33	980051.16	.32	-172.86	2.23	-170.63
WI117	38.53.59	112.26.05	1447.	979593.00	980051.06	-11.62	-173.31	.95	-172.36

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
WI118	38.54.40	112.26.04	1442.	979595.27	980051.78	-11.39	-172.60	.86	-171.74
WI121	38.55.26	112.25.19	1445.	979596.44	980052.54	-10.12	-171.65	.93	-170.72
WI123	38.56.19	112.25.48	1440.	979599.08	980053.35	-9.99	-170.90	.72	-170.18
WI127	38.56.12	112.22.38	1492.	979585.05	980053.30	-7.87	-174.61	1.48	-173.13
WI129	38.57.33	112.22.04	1499.	979587.48	980054.36	-4.25	-171.81	1.17	-170.64
WI132	38.57.88	112.26.80	1424.	979603.00	980054.84	-12.44	-171.58	.40	-171.18
WI133	38.57.88	112.27.93	1419.	979601.70	980054.84	-15.25	-173.85	.32	-173.53
WI135	38.56.11	112.21.26	1526.	979577.52	980053.28	-4.85	-175.40	1.88	-173.52
WI139	38.55.27	112.17.21	1825.	979515.62	980052.55	26.45	-177.60	5.69	-171.91
WI140	38.55.22	112.16.70	1964.	979486.41	980052.51	40.17	-179.41	4.98	-174.43
WI141	38.57.74	112.18.36	1596.	979566.07	980054.73	3.79	-174.57	2.29	-172.28
WI157	38.48.22	112.16.69	2902.	979260.76	980046.36	110.03	-214.35	15.32	-199.03
WI165	38.57.60	112.19.39	1572.	979569.62	980054.59	.23	-175.50	1.83	-173.67
WI166	38.59.63	112.19.18	1548.	979579.50	980056.38	.99	-172.09	1.42	-170.67
WI167	38.59.63	112.17.79	1618.	979563.41	980056.38	6.25	-174.56	1.90	-172.66
WI168	38.59.84	112.16.67	1726.	979503.75	980056.57	-20.11	-213.05	3.02	-210.03
WI170	38.58.63	112.17.44	1661.	979554.11	980055.49	11.20	-174.45	2.26	-172.19
WI172	39. .29	112.18.69	1568.	979612.07	980092.21	3.74	-171.51	1.39	-170.12
WI173	39. 2.24	112.17.76	1571.	979614.81	980093.93	6.71	-169.89	1.31	-168.58
WI175	39. 4.16	112.16.86	1553.	979619.17	980095.60	2.84	-170.74	1.33	-169.41
WI176	39. 4.87	112.16.66	1558.	979619.50	980096.23	3.96	-170.14	1.49	-168.65
WI178	39. 6.86	112.17.48	1514.	979630.29	980097.99	-.47	-169.69	.84	-168.85
WI179	39. 7.10	112.18.90	1488.	979638.00	980098.20	-.85	-167.22	.65	-166.58
WI180	39. 7.10	112.19.47	1477.	979640.14	980098.20	-2.29	-167.36	.59	-166.77
WI181	39. 6.98	112.21.14	1454.	979641.98	980098.09	-4.49	-169.98	.41	-169.57
WI183	39. 8.97	112.23.65	1435.	979654.45	980099.86	-2.64	-163.00	.19	-162.81
WI185	39. 8.42	112.24.55	1421.	979655.95	980099.36	-4.77	-163.64	.15	-163.49
WI193	39. .49	112.24.55	1448.	979641.47	980092.38	-3.99	-165.86	.45	-165.41
WI194	39. .72	112.27.67	1415.	979639.98	980092.59	-15.75	-173.97	.19	-173.78
WI202	39. 1.18	112.20.41	1526.	979624.98	980092.99	3.08	-167.54	1.05	-166.49
WI213	39. 1.90	112.15.63	1686.	979589.61	980093.62	16.38	-172.10	2.35	-169.75
WI215	39. 2.84	112.16.68	1600.	979610.37	980094.45	9.68	-169.15	1.57	-167.58
WI216	39. 3.13	112.15.88	1625.	979605.02	980094.70	11.70	-169.89	1.87	-168.02

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
WI218	39. 8.40	112.15.52	1574.	979618.21	980099.35	4.62	-171.31	1.09	-170.22
WI222	39. 9.28	112.17.78	1526.	979631.08	980100.13	1.76	-168.76	.76	-168.00
WI225	39. 9.28	112.21.15	1463.	979646.62	980100.13	-1.97	-165.51	.66	-164.85
WI226	39. 9.32	112.21.92	1455.	979648.57	980100.16	-2.42	-165.10	.30	-164.80
WI227	39. 8.16	112.19.74	1474.	979640.72	980099.14	-3.51	-168.27	.52	-167.75
WI229	39.12.81	112.17.78	1618.	979624.59	980103.26	20.83	-160.08	1.17	-158.92
WI230	39.12.60	112.15.71	1713.	979600.16	980103.06	25.86	-165.65	1.20	-164.45
WI231	39.13.18	112.16.26	1707.	979601.38	980103.58	24.59	-166.20	1.33	-164.87
WI232	39.11.93	112.20.03	1527.	979641.14	980102.47	9.56	-160.79	.58	-160.21
WI233	39.11.04	112.20.03	1505.	979641.39	980101.68	4.31	-163.96	.53	-163.43
WI234	39.10.17	112.20.02	1487.	979642.02	980100.91	.18	-166.09	.51	-165.58
WI258	39.11.94	112.24.54	1440.	979660.64	980102.48	2.64	-158.35	.15	-158.20
WI260	39.10.47	112.24.56	1447.	979657.59	980101.19	2.94	-158.79	.13	-158.66
WI421	39.14.51	112.21.12	1568.	979642.47	980104.76	21.69	-153.60	.76	-152.84
WI425	39.14.60	112.24.26	1465.	979665.36	980104.83	12.63	-151.11	.28	-150.83
WI426	39.12.82	112.24.43	1445.	979663.55	980103.26	6.27	-155.25	.19	-155.07
WI427	39.12.81	112.23.43	1463.	979659.62	980103.26	7.98	-155.59	.27	-155.32
WI428	39.14.63	112.26.06	1430.	979670.95	980104.86	7.28	-152.51	.15	-152.36
WI528	39.12.82	112.18.91	1588.	979631.45	980103.26	18.20	-159.27	.89	-158.38
WI430	39.14.38	112.18.50	1681.	979614.27	980104.64	28.43	-159.47	1.54	-157.93
WI431	39.13.69	112.20.02	1580.	979636.81	980104.02	20.35	-156.24	.82	-155.42
WI432	39.13.69	112.21.15	1536.	979647.00	980104.02	17.00	-154.69	.62	-154.07
WI433	39.12.82	112.22.29	1487.	979654.83	980103.26	10.62	-155.64	.39	-155.25
WI434	39.12.82	112.21.17	1512.	979649.25	980103.26	12.76	-156.29	.51	-155.78
WI435	39.12.82	112.20.05	1547.	979639.64	980103.26	13.78	-159.12	.69	-158.44
WI436	39.10.59	112.22.83	1458.	979651.12	980101.29	-.06	-163.08	.24	-162.84
WI437	39. 9.02	112.26.09	1410.	979657.30	980099.91	-7.54	-165.11	.07	-165.04
WI438	39.10.57	112.26.82	1411.	979660.96	980101.27	-5.04	-162.64	.03	-162.61
WI439	39.11.34	112.27.99	1405.	979662.76	980101.95	-5.62	-162.65	-.02	-162.67
WI440	39.11.99	112.29.03	1402.	979663.23	980102.52	-6.57	-163.29	-.05	-163.34
WI441	39.10.77	112.29.09	1404.	979660.09	980101.45	-7.98	-164.94	-.06	-165.00
WI443	39. 6.19	112.36.68	1402.	979629.03	980097.40	-35.74	-192.43	-.17	-192.60
WI451	39. 9.37	112.28.89	1405.	979651.50	980100.21	-15.24	-172.24	-.05	-172.29

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
WI453	39. 6.85	112.27.63	1406.	979652.70	980097.98	-11.44	-168.57	.03	-168.54
WI454	39. 5.99	112.27.56	1405.	979649.76	980097.22	-13.71	-170.81	.05	-170.76
77101	38.58.12	112.21.69	1511.	979582.29	980055.05	-6.43	-175.29	1.05	-174.24
77102	38.56.12	112.22.37	1492.	979584.98	980053.30	-8.00	-174.68	1.49	-173.19
77119	38.56.37	112.32.86	1423.	979592.41	980053.52	-21.95	-180.98	.12	-180.86
77120	38.56.48	112.38.19	1429.	979578.59	980053.62	-34.01	-193.70	-.07	-193.77
77121	38.56.46	112.35.98	1427.	979583.23	980053.59	-29.87	-189.38	-.02	-189.40
77122	38.56.45	112.35.43	1429.	979584.27	980053.59	-28.37	-188.05	-.01	-188.06
77125	38.55.32	112.30.23	1430.	979597.05	980052.59	-14.23	-174.03	.30	-173.73
77127	38.53.15	112.26.33	1447.	979593.31	980050.69	-10.88	-172.57	.93	-171.64
77129	38.55.81	112.20.38	1584.	979565.34	980053.02	1.16	-175.86	2.41	-173.45
77130	38.56.08	112.20.14	1588.	979564.30	980053.25	1.09	-176.36	2.33	-174.03
77132	38.52.64	112.24.70	1470.	979586.95	980050.23	-9.65	-173.92	1.55	-172.37
77133	38.53.30	112.27.19	1443.	979594.73	980050.82	-10.93	-172.12	.73	-171.39
77134	38.53.78	112.28.03	1437.	979595.96	980051.24	-11.79	-172.39	.57	-171.82
77135	38.54.21	112.28.76	1430.	979596.88	980051.62	-13.31	-173.16	.44	-172.72
77139	38.52.52	112.33.10	1430.	979590.88	980050.13	-17.92	-177.74	.25	-177.49
77140	38.51.91	112.34.02	1454.	979581.35	980049.59	-19.59	-182.05	.21	-181.84
77202	38.48.10	112.26.20	1529.	979568.00	980046.26	-6.55	-177.36	1.71	-175.65
77205	38.48.25	112.28.70	1501.	979573.63	980046.38	-9.70	-177.38	1.14	-176.24
77230	38.46.80	112.24.08	1602.	979547.02	980045.10	-3.80	-182.79	3.67	-179.12
77233	38.50.40	112.26.35	1474.	979582.95	980048.28	-10.36	-175.11	1.27	-173.84
77234	38.50.38	112.26.90	1472.	979583.91	980048.25	-10.14	-174.61	1.13	-173.48
77235	38.50.37	112.27.84	1466.	979586.93	980048.25	-8.92	-172.73	.91	-171.82
77236	38.50.23	112.28.33	1468.	979587.86	980048.12	-7.28	-171.31	.84	-170.48
77237	38.50.23	112.29.15	1462.	979588.98	980048.12	-7.85	-171.27	1.82	-169.45
77239	38.50.91	112.30.24	1453.	979589.12	980048.72	-11.21	-173.58	.52	-173.06
77240	38.50.91	112.30.71	1453.	979588.56	980048.72	-12.36	-174.08	.49	-173.59
77241	38.50.91	112.31.39	1443.	979590.03	980048.72	-13.31	-174.60	.42	-174.18
77242	38.50.91	112.31.90	1442.	979589.28	980048.72	-14.36	-175.53	.38	-175.15
77243	38.50.91	112.32.49	1431.	979591.28	980048.72	-15.73	-175.68	.37	-175.31
77244	38.50.90	112.33.08	1431.	979589.86	980048.72	-17.35	-177.23	.33	-176.90
77245	38.50.93	112.33.68	1436.	979587.20	980048.75	-18.45	-178.90	.31	-178.59

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
77252	38.50.01	112.34.20	1448.	979582.59	980047.93	-18.56	-180.34	.32	-180.02
77253	38.50.00	112.34.74	1453.	979579.51	980047.91	-20.13	-182.46	.28	-182.18
77254	38.50.38	112.35.66	1478.	979572.39	980048.25	-19.67	-184.86	.18	-184.68
77301	38.58.76	112.21.17	1514.	979586.53	980055.61	-1.99	-171.13	1.06	-170.07
77303	38.58.76	112.23.42	1469.	979597.81	980055.61	-4.62	-168.72	.69	-168.03
77304	38.59.41	112.24.62	1451.	979602.38	980056.20	-6.11	-168.22	.51	-167.71
77305	38.59.55	112.25.14	1441.	979605.07	980056.31	-6.44	-167.51	.46	-167.05
77306	38.59.63	112.25.67	1434.	979606.47	980056.38	-7.46	-167.68	.38	-167.30
77307	38.59.64	112.26.23	1426.	979606.70	980056.38	-9.67	-169.01	.34	-168.68
77308	38.59.64	112.26.81	1421.	979606.85	980056.38	-10.94	-169.76	.29	-169.47
77309	38.59.64	112.27.48	1416.	979605.66	980056.38	-13.64	-171.92	.26	-171.66
77310	39. .51	112.27.79	1419.	979639.77	980092.40	-14.59	-173.22	.19	-173.03
77311	39. .72	112.28.29	1415.	979638.83	980092.59	-17.04	-175.18	.16	-175.02
77312	39. .91	112.28.72	1415.	979637.94	980092.75	-18.28	-176.36	.13	-176.23
77313	39. 1.10	112.29.16	1417.	979635.90	980092.92	-19.84	-178.15	.10	-178.05
77314	39. 1.40	112.29.68	1415.	979633.87	980093.19	-22.51	-180.68	.07	-180.61
77316	39. 1.59	112.30.45	1408.	979634.14	980093.34	-24.65	-182.01	.07	-181.94
77320	39. 2.03	112.32.16	1425.	979626.62	980093.73	-27.30	-186.57	-.03	-186.60
77324	39. 1.14	112.34.53	1423.	979622.16	980092.95	-31.82	-190.78	-.08	-190.86
77327	38.58.75	112.20.30	1530.	979582.06	980055.61	-1.27	-172.29	1.26	-171.03
77328	38.58.75	112.18.92	1563.	979573.70	980055.61	.33	-174.29	1.74	-172.55
77330	38.58.75	112.17.81	1625.	979561.38	980055.61	7.09	-174.43	2.08	-172.35
77335	39. 4.66	112.30.47	1479.	979624.02	980096.04	-15.63	-180.90	.10	-180.80
77336	39. 5.16	112.31.32	1478.	979623.82	980096.49	-16.58	-181.74	.03	-181.71
77337	39. 5.87	112.32.00	1452.	979631.91	980097.12	-17.01	-179.31	-.06	-179.37
77338	39. 4.94	112.32.57	1461.	979625.41	980096.29	-20.15	-183.36	-.03	-183.39
77339	39. 3.97	112.31.90	1466.	979624.08	980095.45	-19.03	-182.83	-.02	-182.85
77340	39. 2.78	112.31.67	1468.	979621.90	980094.41	-19.53	-183.56	.03	-183.53
77341	39. 2.17	112.30.65	1411.	979633.77	980093.87	-24.71	-182.37	.07	-182.30
77342	39. 2.83	112.33.14	1437.	979623.01	980094.45	-28.05	-188.61	-.07	-188.67
77343	39. 3.72	112.33.50	1440.	979623.78	980095.23	-27.01	-187.95	-.08	-188.03
77344	39. 4.35	112.34.00	1437.	979624.92	980095.78	-27.28	-187.91	-.10	-188.01
77345	39. 4.85	112.34.58	1422.	979628.45	980096.22	-29.08	-187.93	-.11	-188.04

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
77348	39. 5.30	112.35.20	1418.	979628.66	980096.61	-30.30	-188.78	-.13	-188.91
77350	39. 6.64	112.35.79	1423.	979627.78	980097.79	-30.94	-189.93	-.14	-190.07
77351	39. 7.23	112.34.16	1447.	979629.33	980098.31	-22.58	-184.23	.02	-184.22
77355	39. .36	112.31.79	1410.	979631.37	980092.27	-25.87	-183.40	.04	-183.36
77361	39. .86	112.33.08	1415.	979626.31	980092.70	-29.77	-187.88	-.02	-187.90

APPENDIX B

LIST OF PHYSICAL PROPERTY MEASUREMENTS

Table 3. DENSITY MEASUREMENTS

The technique used to measure the densities is described by Carrier (1979).

Rock	Sample Location		Saturated	Dry	Percent
<u>Type</u>	<u>Latitude</u> (North)	<u>Longitude</u> (West)	<u>Density</u> (g/cc)	<u>Density</u> (g/cc)	<u>Porosity</u> Percent
Rhyolite	38°54.79'	112°29.78'	2.50	2.38	13
Rhyolite	38°54.79'	112°29.78'	2.46	2.20	33
Rhyolite	38°54.79'	112°29.78'	2.64	2.37	29
Obsidian	38°54.79'	112°29.78'	2.42	2.32	13
Travertine	38°50.66'	112°29.78'	2.68	2.55	13
Travertine	38°51.99'	112°29.87'	2.62	2.28	38
Arkose	39°02.09'	112°19.78'	2.69	2.61	8
Limestone	39°02.09'	112°19.78'	2.85	2.82	3
Sandstone	39°02.09'	112°19.78'	2.78	2.60	16
Basalt	38°53.21'	112°31.96'	2.61	2.22	44
Basalt	39°06.71'	112°32.91'	2.57	2.52	5
Limestone	39°04.05'	112°18.89'	2.72	2.72	<0.5
Sandstone	39°02.09'	112°19.78'	2.67	2.61	6
Limestone	39°02.09'	112°19.78'	2.73	2.71	1

Table 4. MAGNETIC SUSCEPTIBILITY MEASUREMENTS

The technique used to measure the magnetic susceptibilities is described by Carter and Cook (1978).

Rock Type	Sample Location		Magnetic Susceptibility (cgs x 10 ⁶)
	<u>Latitude</u> (North)	<u>Longitude</u> (West)	
Basalt	38°56.50'	112°33.15'	63.2
Basalt	38°53.21'	112°31.96'	333.9
Basalt	39°08.88'	112°42.96'	370.8
Basalt	39°01.68'	112°30.88'	65.2
Basalt	39°02.03'	112°27.68'	63.0
Sandstone	38°53.29'	112°19.25'	8.5
Sandstone	39°02.09'	112°19.78'	5.4
Arkose	39°02.09'	112°19.78'	9.0
Arkose	38°52.65'	112°18.22'	9.0
Limestone	39°02.17'	112°19.53'	11.2
Travertine	38°51.30'	112°29.36'	9.0
Rhyolite	38°54.79'	112°29.78'	155.1
Quartzite	38°45.36'	112°32.53'	8.0

APPENDIX C

PROGRAM DESCRIPTIONS

I. Description and Guide to Terrain Correction Program (CHUCHU)

For the gravity survey, terrain corrections for a radial distance of between 0.895 and 166.7 km from each station were calculated using a computer program written initially by Plouff (1966, 1977) and modified by Godson (1978, written communication) for the U. S. Geological Survey. The program was modified for use on the University of Utah UNIVAC 1108 digital computer and is available as a program file, CHUCHU. A comparison of the results from over 1000 stations from this survey and a gravity survey by Gabbert (1980) has shown that CHUCHU gives results which agree with the U. S. Geological Survey program to within a round-off error of 0.02 mgal.

For this study, the inner-zone terrain corrections to a radial distance of 0.895 km were calculated by hand using the Hammer (1939) zone charts. Gabbert (1980) is currently completing a preliminary study of the accuracy of CHUCHU which will provide some guidelines on the terrain conditions for which hand terrain corrections are necessary for the inner zones. At present, CHUCHU offers the option of calculating terrain corrections for radial distances of 0.0, 0.895, 1.53, or 2.615 km from the station to a radial distance of 166.7 km.

CHUCHU accesses terrain data stored on a magnetic tape to create terrain maps digitized at 30 sec, 1 min, and 3 min of arc intervals of the area to be used for the terrain corrections. The 30 sec digitized terrain data are used to calculate the terrain corrections for radial distances of between 0.0 and 5.0 km from the station. Additionally, the inner-zone terrain corrections are calculated assuming a ground surface which is sloping between the station and the compartment; and

a complete circular join (for use with hand terrain corrections) is calculated (Plouff, 1977).

The 1 min digitized topography is used for radial distances of between 5.0 and 21.0 km from the station and the 3 min topography beyond 21.0 km. For the 1 min and 3 min digitized data, the program calculates the terrain correction using flat-topped compartments. A correction for the earth's curvature is calculated beyond 14 km. All terrain locations and distances are calculated in a latitude-longitude reference system.

The program appears to give reasonably accurate and repeatable results and is therefore an improvement over hand terrain corrections. For the approximately 900 stations in this survey, the computer costs were approximately \$30. The cost for hand-computed inner-zone terrain corrections are estimated at about \$300 (based on 900 stations @ 6 min per station times \$3.00 per hour). This represents a significant cost savings over complete hand terrain corrections, assumed to be about \$4000 (@ 1.5 hours per station).

Plouff (1977) has shown that the program incorporates improvements over the terrain correction program of Kane (1962) which has been used in the past at the University of Utah. CHUCHU appears to be a significant improvement in the calculation of terrain corrections for gravity data at the University of Utah. Additional study of this technique by Gabbert (1980) and during future gravity studies should result in a more precise understanding of the accuracy of this program.

Execution of CHUCHU--CHUCHU is simple to use but may require half an hour or more time to execute on the computer. Because all of the file manipulation is done inside the program, the user needs only a minimal understanding of the computer. Before executing the program, a data file must exist containing the gravity information for each station. The format used for the data is the same as the format of the output from the reduction program; but repeat stations and headings must be deleted. The format is as follows:

STAT. NO., LAT (deg, min), LONG (deg, min), ELEV
(A6, I4, 1X, F6.2, I4, 1X, F6.2, 2X, F6.0)

***Note, no file used in this program can have a name longer than 5 characters.

The following is a sample of the execution of the program.

>@XQT,U CHUCHU.ABS

ENTER INPUT GRAVITY FILE NAME

>BLRK1.

ENTER SECOND BOUGUER DENSITY

>2.5

ENTER FILE TO STORE TERRAIN CORRECTIONS IN

>FILT.

ENTER 1 FOR REPEAT RUN OF SAME AREA; OTHERWISE A 0

>0

ENTER LOWER RIGHT LAT & LONG BOUNDARY OF DATA, DEG & NEAREST 15 MIN

>38,30,112,0

ENTER UPPER LEFT LAT & LONG BOUNDARY OF DATA

>39,30,113,0

ENTER 0 IF STATION ELEVATIONS ARE ABOVE SEA LEVEL & ON LAND ENTER 1 IF STATIONS ARE ON LAND & SOME ARE BELOW SEA LEVEL ENTER -1 IF STATION ELEVATIONS ARE DEPTHS BELOW SEA LEVEL. ENTER -2 IF STATION ELEVATIONS ARE DEPTHS OF BOTTOM BELOW STATIONS

>0

ENTER INNER-TERRAIN DATA-SPACING-(15 OR 30)

>30

ENTER DISTANCE IN KM (0.,.895,1.53,OR 2.615) WHERE COMPUTER CORRECTIONS START

>.895

@ASG,A BLRK1.

STATUS = 0

@USE 9.,BLRK1.

STATUS = 0

@ASG,UP FILT.

STATUS = 0

@ASG,UP FILE3.

STATUS = 0

@USE 8.,FILE3.

STATUS = 0

ENTER NUMBER OF TAPE CONTAINING ELEVATIONS

>1674

@ASG,TR 1.,8C9,1674

@ASG,UP TERR1.

STATUS 0

@USE 10.,TERR1.

STATUS = 0

@ASG,UP TERR2.

STATUS = 0

@USE 11.,TERR2.

STATUS = 0

@ASG,UP TERR3.

STATUS = 0

@USE 12.,TERR3.

STATUS = 0

@FREE,A 9. STATUS IS 0

@FREE,A 10. STATUS IS 0

@FREE,A 11. STATUS IS 0

@FREE,A 12. STATUS IS 0

@FREE,A 14. STATUS IS 0

TERRAIN CORRECTIONS COMPLETED

NORMAL EXIT. TIME: 231532 MILLISECONDS.

CHUCHU uses two densities, the first density will always be 2.67 g/cc. The program automatically assumes this value for the first density, but will also calculate terrain corrections for the second density specified. CHUCHU creates two new files in the user's space. The first file will contain a listing of the terrain corrections without headings for subsequent use. The name of this file must be specified as a five (or less) character name, which is not currently catalogued. The second file, named FILE3, will contain headings and an explanation of the output, as well as any error messages. No previous file with this name should exist in the user's space or it will be erased and written over.

During the execution, three terrain files are created in the user's space. TERR1 contains 30 sec digitized topography, TERR2 contains 1 min digitized topography, and TERR3 contains 3 min digitized topography. These files are large and should be deleted after all the terrain corrections are complete. However, creating these files is one of the more expensive parts of this program. If a second run is anticipated, the computer costs can be reduced by retaining the terrain files and entering a '1' to signify a repeat run during the execution.

To create the terrain files, the boundaries of the survey area must be input to the nearest 15 min of latitude and longitude outside the survey area. Within Utah, all stations are assumed to be on land and above sea level. No other options have been tested for CHUCHU. The inner terrain data spacing for Utah is currently 30 sec. CHUCHU may be modified at a later date to accept 15 sec data.

The terrain corrections can be started at radial distances of 0.0, 0.895, 1.53, or 2.615 km from the station. These distances correspond to the station location, or zones F, G, and H, respectively, of the Hammer zone charts. If the terrain correction is started at 0.0 km, the user has the option of calculating an inner terrain correction to any of the above Hammer zones, except zone F which requires 15 sec digitized terrain data.

The terrain data for Utah are currently stored on tape number 1674. Because this number may change in the future, the user should check for the current tape number.

Figure 13 is a flow diagram of CHUCHU and a program listing follows.

Figure 13. Flow chart of CHUCHU.

Listing of Terrain Correction Program

The program listing (pages 99-159) is not included in this report. To obtain a listing or magnetic tape of this program, the reader may contact:

T. Killpack

Earth Science Laboratory

420 Chipeta Way

Salt Lake City, Utah 84108

III Description and Guide to Simultaneous Modeling Program (JOINT)

A number of computer programs are available (Snow, 1978) which use inversion techniques to model either gravity or aeromagnetic data. JOINT was initially a combination of two of the programs written by Snow (1978), MAGINV and G2HINV, and still bears a number of similarities to these programs. However, it was found that the use of a Marquardt step did not significantly improve the stability of the joint inversion; and therefore a Gauss method (Beck and Arnold, 1977) was used for the inversion scheme in JOINT.

JOINT uses a Talwani 2 1/2-dimensional modeling technique (Talwani et al., 1959) which incorporates end corrections for polygons of finite strike length (Cady, 1977; Shuey and Pasquale, 1973). The forward problem is given as:

$$g_j = K \sum_{i=1}^N \Delta\rho_i \sum_{l=1}^M f(x_{ijl}, y_i, z_{ijl}) \quad (1)$$

where g_j is the theoretical value of gravity or magnetics that would be observed at the j 'th point on, or above, the surface. K is a constant which depends on the type of data (gravity or magnetic) being calculated. $\Delta\rho_i$ is the density contrast, for the gravity data, and the magnetic susceptibility contrast, for the magnetic data, of the i 'th polygon. x , y , and z are the vertices of the i 'th polygon measured from the j 'th station.

To combine the two data sets it is necessary to standardize the data. It is assumed that some knowledge of the error in each data set is available; and therefore an objective function was chosen to

utilize this information and standardize the data in a manner suggested by Jackson (1973). JOINT is designed to find those parameters which minimize a chi-squared objective function:

$$S_{\chi^2} = \sum_{j=1}^M \left(\frac{g_j^o - g_j}{\sigma_j} \right)^2 \quad (2)$$

where g_j^o is the observed value and g_j is the predicted value at the j 'th station and σ_j is the estimated variance for either the gravity or aeromagnetic data represented by g_j^o . Rewriting equation (2) in matrix notation gives:

$$s = [\bar{g}^o - \bar{g}(\bar{p})]^T \bar{W} [\bar{g}^o - \bar{g}(\bar{p})] \quad (3)$$

$$\bar{W} = \begin{cases} \frac{1}{\sigma_{ij}^2} & \text{for } i = j \\ 0 & \text{elsewhere} \end{cases}$$

To minimize s , the matrix derivative of s is set equal to zero.

$$\nabla_p s = \bar{A}^T(\hat{p}) \bar{W} [\bar{g}^o - \bar{g}(\hat{p})] = 0 \quad (4)$$

where $\bar{A}(\hat{p}) = \nabla_p \bar{g}(\hat{p})$ and $\nabla_p = \left[\frac{\partial}{\partial p_1}, \dots, \frac{\partial}{\partial p_K} \right]^T$

Because $\bar{g}(\hat{p})$ is generally non-linear with respect to the parameters $\hat{p}$, a truncated Taylor expansion about some $\hat{p}'$ is used to find the estimated $\hat{p}$. This gives (Beck and Arnold, 1977):

$$\bar{A}^T(\hat{p}') \bar{W} [\bar{g}^o - \bar{g}(\hat{p}') - \bar{A}(\hat{p}') \Delta \bar{p}] \approx 0 \quad (5a)$$

$$\Delta \bar{p} = \hat{p} - \hat{p}'$$

or

$$\bar{A}^T \bar{W} \bar{A} \Delta \bar{p} = \bar{A}^T \bar{W} \bar{e} \quad (5b)$$

$$\bar{e} = \bar{g}^o - \bar{g}$$

Solving equation (5b) iteratively to find the best estimate of p for the k 'th iteration gives:

$$\bar{p}^{k+1} = \bar{p}^k + (\bar{A}^T \bar{W} \bar{A})^{-1} \bar{A}^T \bar{W} \bar{e}. \quad (6)$$

JOINT is an interactive program, but it is recommended that the gravity and aeromagnetic data, as well as the model parameters, be stored in a data file to be added during the execution of JOINT. The following is a listing of the program output and the data file used to obtain this output.

@XQT,U JOINT.ABS

THROUGHOUT THIS PROGRAM 1=NO, 0=YES

INPUT PROFILE IDENTIFICATION

@ADD BB1.

INPUT NO. OF POLYGONS IN MODEL

INPUT THE UNITS OF DISTANCE TO BE USED. KM=0,MI=1,KF=2

STATION AT WHICH THE COMPUTED & OBSERVED VALUES AGREE

INPUT AMBIENT FIELD,INCLINATION,AZIMUTH, TYPE OF MAGNETIC FIELD DATA

TOTAL = 1,VERTICAL = 2

TOTAL NO. OF STATIONS IN PROFILE

INPUT GRAVITY,MAGNETIC VALUE,DISTANCE, ALTITUDE

INPUT NO. OF SIDES,DENSITY,SUSCEPTIBILITY CONTRAST,STRIKE LENGTH

INPUT X,Z COORDINATE FOR EACH VERTEX

INPUT NO. OF SIDES,DENSITY,SUSCEPTIBILITY CONTRAST,STRIKE LENGTH

INPUT X,Z COORDINATE FOR EACH VERTEX

INPUT NO. OF SIDES,DENSITY,SUSCEPTIBILITY CONTRAST,STRIKE LENGTH

INPUT X,Z COORDINATE FOR EACH VERTEX

INPUT NO. OF SIDES,DENSITY,SUSCEPTIBILITY CONTRAST,STRIKE LENGTH

INPUT X,Z COORDINATE FOR EACH VERTEX

INPUT X,Z COORDINATE FOR EACH VERTEX

POLYGON NO. 1	DENSITY	-.20000	SUSCEPTIBILITY	.00070
STRIKE LENGTH	100.00000			
X VERTICES	Z VERTICES		REF	
-1000.000	.000	1	1	
1000.000	.000	1	2	
45.000	1.940	1	3	
24.400	2.840	1	4	
10.175	4.000	1	5	
.000	4.400	1	6	
-1000.000	4.400	1	7	
-1000.000	.000	1	8	

POLYGON NO. 2	DENSITY	-.20000	SUSCEPTIBILITY	.00000
STRIKE LENGTH	100.00000			
X VERTICES	Z VERTICES		REF	
-1000.000	.000	2	1	
1000.000	.000	2	2	
45.000	1.890	2	3	
34.200	2.165	2	4	
33.400	.930	2	5	
26.790	1.000	2	6	
26.550	1.440	2	7	
24.400	1.420	2	8	
23.400	1.440	2	9	
23.300	1.200	2	10	
22.100	1.200	2	11	
22.000	1.000	2	12	
21.300	1.200	2	13	
21.200	1.350	2	14	
20.250	1.305	2	15	
.000	1.500	2	16	
-1000.000	.000	2	17	

POLYGON NO. 3	DENSITY	-.20000	SUSCEPTIBILITY	.00000
STRIKE LENGTH	100.00000			
X VERTICES	Z VERTICES		REF	
.000	1.500	3	1	
20.250	1.305	3	2	
20.100	1.810	3	3	
19.800	1.635	3	4	
19.600	2.000	3	5	
17.500	2.000	3	6	
15.200	2.300	3	7	
14.400	3.200	3	8	
13.600	3.750	3	9	
10.175	4.000	3	10	
8.500	3.650	3	11	
.000	1.500	3	12	

POLYGON NO. 4	DENSITY	.09000	SUSCEPTIBILITY	-.00040
STRIKE LENGTH	100.00000			
X VERTICES	Z VERTICES		REF	
-1000.000	.000	4	1	
.000	1.500	4	2	
10.175	4.000	4	3	
.000	4.400	4	4	
-1000.000	4.400	4	5	
-1000.000	.000	4	6	

POLYGON NO. 5	DENSITY	.12000	SUSCEPTIBILITY	.00250
STRIKE LENGTH	6.00000			
X VERTICES	Z VERTICES		REF	
15.000	.072	5	1	
23.575	.080	5	2	
24.000	.095	5	3	
29.825	.060	5	4	
24.000	.245	5	5	
23.500	.227	5	6	
23.200	.310	5	7	
21.800	.220	5	8	
21.200	.220	5	9	
20.700	.290	5	10	
20.000	.280	5	11	
18.800	.320	5	12	
15.000	.072	5	13	

DO YOU WISH TO INVERT THIS MODEL? YES=0,NO=1

0

HOW MANY ITERATIONS?

1

TO WHAT DEVICE DO YOU WISH TO WRITE?

6

INPUT THE ESTIMATED VARIANCE FOR GRAVITY,MAGNETICS

.5,10.

INPUT NO. OF DENSITY,SUSCEPTIBILITY,VERTEX PARAMETERS TO BE ADJUSTED

0,0,1

TOTAL NO OF VERTICAL VERTEX ADJUSTMENTS

1

INPUT THE REF NO.S (I,J) OF THE VERTICES & ORDER NO.

5,7,1

TOTAL NO OF HORIZONTAL VERTEX ADJUSTMENTS

0

A TOTAL OF 1 PARAMETERS TO BE ADJUSTED
THE NEW PARAMETERS ARE:

POLYGON NO. 1 DENSITY -.20000 SUSCEPTIBILITY .00070

STRIKE LENGTH 100.000

X VERTICES	Z VERTICES	REF
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-1000.000	.000	1 1
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1000.000	.000	1 2
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45.000	1.940	1 3
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24.400	2.840	1 4
--------	-------	-----

10.175	4.000	1 5
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.000	4.400	1 6
------	-------	-----

-1000.000	4.400	1 7
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-1000.000	.000	1 8
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POLYGON NO. 2 DENSITY -.20000 SUSCEPTIBILITY .00000

STRIKE LENGTH 100.000

X VERTICES	Z VERTICES	REF
------------	------------	-----

-1000.000	.000	2 1
-----------	------	-----

1000.000	.000	2 2
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45.000	1.890	2 3
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34.200	2.165	2 4
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33.400	.930	2 5
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26.790	1.000	2 6
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26.550	1.440	2 7
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24.400	1.420	2 8
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23.400	1.440	2 9
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23.300	1.200	2 10
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22.100	1.200	2 11
22.000	1.000	2 12
21.300	1.200	2 13
21.200	1.350	2 14
20.250	1.305	2 15
.000	1.500	2 16
-1000.000	.000	2 17

POLYGON NO. 3 DENSITY -.20000 SUSCEPTIBILITY .00000

STRIKE LENGTH 100.000

X VERTICES	Z VERTICES	REF
.000	1.500	3 1
20.250	1.305	3 2
20.100	1.810	3 3
19.800	1.635	3 4
19.600	2.000	3 5
17.500	2.000	3 6
15.200	2.300	3 7
14.400	3.200	3 8
13.600	3.750	3 9
10.175	4.000	3 10
8.500	3.650	3 11
.000	1.500	3 12

POLYGON NO. 4 DENSITY .09000 SUSCEPTIBILITY -.00040

STRIKE LENGTH 100.000

X VERTICES	Z VERTICES	REF
-1000.000	.000	4 1
.000	1.500	4 2
10.175	4.000	4 3
.000	4.400	4 4
-1000.000	4.400	4 5
-1000.000	.000	4 6

POLYGON NO. 5	DENSITY	.12000	SUSCEPTIBILITY	.00250
STRIKE LENGTH	6.000			
X VERTICES	Z VERTICES		REF	
15.000	.072	5	1	
23.575	.080	5	2	
24.000	.095	5	3	
29.825	.060	5	4	
24.000	.245	5	5	
23.500	.227	5	6	
23.200	.310	5	7	
21.800	.220	5	8	
21.200	.220	5	9	
20.700	.290	5	10	
20.000	.280	5	11	
18.800	.320	5	12	
15.000	.072	5	13	

STAT NO	DISTANCE	OBSERVED GRAVITY	COMPUTED GRAVITY	OBSERVED MAGNETIC	COMPUTED MAGNETIC	DIFF GRAV	DIFF MAG
1	.00	-180.23	-180.40	-370.	-364.	.17	-6.2
2	1.55	-182.96	-182.96	-360.	-360.	.00	.0
3	3.03	-185.52	-185.75	-350.	-355.	.23	5.1
4	4.80	-188.53	-188.91	-349.	-350.	.38	.8
5	8.59	-193.77	-193.67	-349.	-341.	-.10	-7.8
6	9.95	-194.18	-194.26	-350.	-340.	.08	-10.0
7	11.59	-193.61	-193.91	-350.	-341.	.30	-8.9
8	12.39	-192.82	-193.29	-360.	-343.	.47	-16.9
9	13.20	-192.02	-192.36	-360.	-346.	.34	-13.5
10	13.78	-191.77	-191.51	-361.	-350.	-.26	-10.6
11	14.58	-189.25	-190.10	-360.	-361.	.85	1.0
12	15.38	-187.86	-188.44	-360.	-363.	.58	3.0
13	15.71	-187.39	-187.72	-357.	-357.	.33	-.4
14	16.03	-186.63	-187.01	-353.	-351.	.38	-2.3
15	16.38	-186.12	-186.24	-349.	-345.	.12	-4.2
16	16.64	-185.38	-185.69	-345.	-341.	.31	-4.2

17	16.90	-185.05	-185.15	-342.	-337.	.10	-5.3
18	17.25	-184.48	-184.44	-337.	-331.	-.04	-6.0
19	17.57	-183.80	-183.80	-331.	-325.	-.00	-5.6
20	17.90	-183.24	-183.17	-324.	-319.	-.07	-4.9
21	18.22	-182.81	-182.55	-312.	-312.	-.26	.1
22	18.70	-181.73	-181.64	-300.	-302.	-.09	2.4
23	19.09	-181.37	-180.94	-302.	-302.	-.43	-.3
24	19.47	-180.53	-180.24	-305.	-307.	-.29	1.8
25	19.63	-180.31	-179.94	-305.	-309.	-.37	4.3
26	19.92	-179.63	-179.39	-305.	-313.	-.24	7.9
27	20.09	-179.43	-179.07	-310.	-314.	-.36	3.6
28	20.41	-179.17	-178.44	-315.	-313.	-.73	-1.7
29	20.73	-178.35	-177.85	-314.	-317.	-.50	2.6
30	21.08	-177.72	-177.30	-320.	-331.	-.42	11.1
31	21.39	-177.23	-176.85	-325.	-343.	-.38	17.9
32	21.81	-176.38	-176.26	-340.	-346.	-.12	5.6
33	22.29	-175.62	-175.67	-325.	-333.	.05	7.9
34	22.52	-175.78	-175.45	-321.	-324.	-.33	3.4
35	22.84	-175.43	-175.20	-318.	-312.	-.23	-5.5
36	23.16	-175.06	-175.04	-305.	-308.	-.02	2.9
37	23.45	-175.29	-175.00	-310.	-317.	-.29	6.6
38	23.77	-175.36	-174.94	-321.	-328.	-.42	7.2
39	24.45	-174.99	-174.67	-324.	-334.	-.35	9.7
40	24.74	-174.94	-174.52	-326.	-334.	-.42	8.5
41	25.25	-174.55	-174.20	-328.	-336.	-.35	8.3
42	25.57	-174.23	-173.96	-330.	-338.	-.27	7.6
43	26.06	-173.60	-173.52	-332.	-339.	-.08	7.4
44	26.47	-173.36	-173.04	-334.	-341.	-.32	7.1
45	26.81	-172.80	-172.63	-336.	-342.	-.17	6.4
46	27.13	-172.44	-172.25	-338.	-344.	-.19	5.7
47	27.36	-172.06	-172.01	-339.	-345.	-.05	5.7
48	27.68	-171.73	-171.71	-340.	-346.	-.02	6.1
49	28.00	-171.65	-171.47	-341.	-348.	-.18	6.6
50	28.81	-170.95	-171.03	-345.	-352.	.08	7.2
51	29.61	-170.50	-170.75	-348.	-360.	.25	11.9
52	30.01	-170.18	-170.64	-349.	-362.	.46	13.4

53	30.46	-170.34	-170.52	-346.	-361.	.18	14.7
54	31.29	-170.36	-170.43	-342.	-358.	.07	16.2
55	32.09	-170.36	-170.60	-360.	-357.	.24	-3.1
56	33.35	-171.52	-171.85	-355.	-356.	.33	1.0
57	34.50	-173.40	-173.62	-338.	-356.	.22	17.7
58	35.50	-173.61	-174.37	-330.	-356.	.76	25.7
59	36.15	-173.52	-174.53	-336.	-356.	1.01	19.7
60	37.76	-174.03	-174.37	-336.	-356.	.34	20.1
61	39.11	-174.40	-173.95	-337.	-357.	-.45	19.5
62	40.94	-172.24	-173.24	-338.	-357.	1.00	19.4
63	42.36	-175.12	-172.66	-338.	-358.	-2.46	20.4
64	43.45	-170.25	-172.23	-339.	-359.	1.98	20.2
65	44.97	-170.19	-171.73	-340.	-360.	1.54	20.3

THE TOTAL SUM OF THE SQUARES FOR GRAVITY IS 20.862
MAGNETICS IS 7057.

THE VARIANCE FOR GRAVITY IS .326 MAGNETICS 110.

THE STANDARD DEVIATION FOR GRAVITY IS .571 MAGNETICS IS 11.
THE CHI SQ OBJECTIVE FUNCTION IS 747.408 COMBINED VARIANCE IS 5.79
THE PARAMETER VECTORS ARE ORDERED AS

1
LAMBDA 1 = 46.966546
P = 1
DEL= -.0144
THE NEW PARAMETERS ARE:

POLYGON NO. 1	DENSITY	-.20000	SUSCEPTIBILITY	.00070
STRIKE LENGTH	100.000			
X VERTICES	Z VERTICES		REF	
-1000.000	.000	1	1	
1000.000	.000	1	2	
45.000	1.940	1	3	

24.400	2.840	1	4
10.175	4.000	1	5
.000	4.400	1	6
-1000.000	4.400	1	7
-1000.000	.000	1	8

POLYGON NO. 2 DENSITY -.20000 SUSCEPTIBILITY .00000

STRIKE LENGTH 100.000

X VERTICES Z VERTICES REF

-1000.000	.000	2	1
1000.000	.000	2	2
45.000	1.890	2	3
34.200	2.165	2	4
33.400	.930	2	5
26.790	1.000	2	6
26.550	1.440	2	7
24.400	1.420	2	8
23.400	1.440	2	9
23.300	1.200	2	10
22.100	1.200	2	11
22.000	1.000	2	12
21.300	1.200	2	13
21.200	1.350	2	14
20.250	1.305	2	15
.000	1.500	2	16
-1000.000	.000	2	17

POLYGON NO. 3 DENSITY -.20000 SUSCEPTIBILITY .00000

STRIKE LENGTH 100.000

X VERTICES Z VERTICES REF

.000	1.500	3	1
20.250	1.305	3	2
20.100	1.810	3	3
19.800	1.635	3	4
19.600	2.000	3	5

17.500	2.000	3	6
15.200	2.300	3	7
14.400	3.200	3	8
13.600	3.750	3	9
10.175	4.000	3	10
8.500	3.650	3	11
.000	1.500	3	12

POLYGON NO. 4 DENSITY .09000 SUSCEPTIBILITY -.00040

STRIKE LENGTH 100.000

X VERTICES Z VERTICES REF

-1000.000	.000	4	1
.000	1.500	4	2
10.175	4.000	4	3
.000	4.400	4	4
-1000.000	4.400	4	5
-1000.000	.000	4	6

POLYGON NO. 5 DENSITY .12000 SUSCEPTIBILITY .00250

STRIKE LENGTH 6.000

X VERTICES Z VERTICES REF

15.000	.072	5	1
23.575	.080	5	2
24.000	.095	5	3
29.825	.060	5	4
24.000	.245	5	5
23.500	.227	5	6
23.200	.296	5	7
21.800	.220	5	8
21.200	.220	5	9
20.700	.290	5	10
20.000	.280	5	11
18.800	.320	5	12
15.000	.072	5	13

STAT NO	DISTANCE	OBSERVED GRAVITY	COMPUTED GRAVITY	OBSERVED MAGNETIC	COMPUTED MAGNETIC	DIFF GRAV	DIFF MAG
1	.00	-180.23	-180.40	-370.	-364.	.17	-6.2
2	1.55	-182.96	-182.96	-360.	-360.	.00	.0
3	3.03	-185.52	-185.75	-350.	-355.	.23	5.1
4	4.80	-188.53	-188.91	-349.	-350.	.38	.8
5	8.59	-193.77	-193.67	-349.	-341.	-.10	-7.8
6	9.95	-194.18	-194.26	-350.	-340.	.08	-10.0
7	11.59	-193.61	-193.91	-350.	-341.	.30	-8.9
8	12.39	-192.82	-193.29	-360.	-343.	.47	-16.9
9	13.20	-192.02	-192.36	-360.	-346.	.34	-13.6
10	13.78	-191.77	-191.51	-361.	-350.	-.26	-10.6
11	14.58	-189.25	-190.10	-360.	-361.	.85	1.0
12	15.38	-187.86	-188.44	-360.	-363.	.58	3.0
13	15.71	-187.39	-187.72	-357.	-357.	.33	-.5
14	16.03	-186.63	-187.01	-353.	-351.	.38	-2.4
15	16.38	-186.12	-186.24	-349.	-345.	.12	-4.2
16	16.64	-185.38	-185.69	-345.	-341.	.31	-4.3
17	16.90	-185.05	-185.15	-342.	-337	.10	-5.3
18	17.25	-184.48	-184.44	-337.	-331.	-.04	-6.0
19	17.57	-183.80	-183.80	-331.	-325.	-.00	-5.7
20	17.90	-183.24	-183.17	-324.	-319.	-.07	-5.0
21	18.22	-182.81	-182.55	-312.	-312.	-.26	-.0
22	18.70	-181.73	-181.64	-300.	-302.	-.09	2.3
23	19.09	-181.37	-180.94	-302.	-302.	-.43	-.5
24	19.47	-180.53	-180.24	-305.	-307.	-.29	1.6
25	19.63	-180.31	-179.94	-305.	-309.	-.37	4.1
26	19.92	-179.63	-179.39	-305.	-313.	-.24	7.5
27	20.09	-179.43	-179.07	-310.	-313.	-.36	3.3
28	20.41	-179.17	-178.44	-315.	-313.	-.73	-2.2
29	20.73	-178.35	-177.85	-314.	-316.	-.50	2.0
30	21.08	-177.72	-177.30	-320.	-330.	-.42	10.3
31	21.39	-177.23	-176.86	-325.	-342.	-.37	16.9
32	21.81	-176.38	-176.26	-340.	-345.	-.12	4.7
33	22.29	-175.62	-175.69	-325.	-334.	.07	8.9

34	22.52	-175.78	-175.48	-321.	-327.	-.30	5.6
35	22.84	-175.43	-175.23	-318.	-316.	-.20	-1.7
36	23.16	-175.06	-175.07	-305.	-312.	.01	7.0
37	23.45	-175.29	-175.02	-310.	-319.	-.27	8.9
38	23.77	-175.36	-174.95	-321.	-328.	-.41	7.5
39	24.45	-174.99	-174.67	-324.	-333.	-.32	9.2
40	24.74	-174.94	-174.52	-326.	-334.	-.42	8.0
41	25.25	-174.55	-174.20	-328.	-336.	-.35	8.0
42	25.57	-174.23	-173.96	-330.	-337.	-.27	7.3
43	26.06	-173.60	-173.52	-332.	-339.	-.08	7.3
44	26.47	-173.36	-173.04	-334.	-341.	-.32	6.9
45	26.81	-172.80	-172.63	-336.	-342.	-.17	6.3
46	27.13	-172.44	-172.25	-338.	-344.	-.19	5.6
47	27.36	-172.06	-172.01	-339.	-345.	-.05	5.6
48	27.68	-171.73	-171.71	-340.	-346.	-.02	6.0
49	28.00	-171.65	-171.47	-341.	-347.	-.18	6.5
50	28.81	-170.95	-171.03	-345.	-352.	.08	7.2
51	29.61	-170.50	-170.75	-348.	-360.	.25	11.9
52	30.01	-170.18	-170.64	-349.	-362.	.46	13.4
53	30.46	-170.34	-170.52	-346.	-361.	.18	14.7
54	31.29	-170.36	-170.43	-342.	-358.	.07	16.2
55	32.09	-170.36	-170.60	-360.	-357.	.24	-3.1
56	33.35	-171.52	-171.85	-355.	-356.	.33	1.0
57	34.50	-173.40	-173.62	-338.	-356.	.22	17.7
58	35.50	-173.61	-174.37	-330.	-356.	.76	25.7
59	36.15	-173.52	-174.53	-336.	-356.	1.01	19.7
60	37.76	-174.03	-174.37	-336.	-356.	.34	20.1
61	39.11	-174.40	-173.95	-337.	-357.	-.45	19.5
62	40.94	-172.24	-173.24	-338.	-357.	1.00	19.4
63	42.36	-175.12	-172.66	-338.	-358.	-2.46	20.4
64	43.45	-170.25	-172.23	-339.	-359.	1.98	20.2
65	44.97	-170.19	-171.73	-340.	-360.	1.54	20.3

THE TOTAL SUM OF THE SQUARES FOR GRAVITY IS
MAGNETICS IS 7037.

20.797

THE VARIANCE FOR GRAVITY IS .325 MAGNETICS 110.

THE STANDARD DEVIATION FOR GRAVITY IS .570 MAGNETICS IS 10.

THE CHI SQ OBJECTIVE FUNCTION IS 745.314 COMBINED VARIANCE IS 5.78

STANDARD DEVIATION IS 2.40

DO YOU WISH A PLOT? YES=0,NO=1

1

NORMAL EXIT. TIME: 19920 MILLISECONDS.

PROFILE B-B' EAST WEST

5

0

2

.55,65.,254.,1

65

-180.23,-370.,.0,.3048
-182.96,-360.,1.545,.3048
-185.52,-350.,3.026,.3048
-188.53,-349.,4.796,.3048
-193.77,-349.,8.594,.3048
-194.18,-350.,9.946,.3048
-193.61,-350.,11.587,.3048
-192.82,-360.,12.392,.3048
-192.02,-360.,13.197,.3048
-191.77,-361.,13.776,.3048
-189.25,-360.,14.581,.3048
-187.86,-360.,15.385,.3048
-187.39,-357.,15.707,.3048
-186.63,-353.,16.029,.3048
-186.12,-349.,16.383,.3048
-185.38,-345.,16.641,.3048
-185.05,-342.,16.898,.3048
-184.48,-337.,17.252,.3048
-183.80,-331.,17.574,.3048
-183.24,-324.,17.896,.3048
-182.81,-312.,18.218,.3048
-181.73,-300.,18.701,.3048
-181.37,-302.,19.087,.3048
-180.31,-305.,19.473,.3048
-179.63,-305.,19.634,.3048
-179.43,-310.,19.924,.3048
-179.17,-315.,20.085,.3048
-178.35,-314.,20.406,.3048
-177.72,-320.,21.082,.3048
-177.23,-325.,21.082,.3048
-176.38,-340.,21.388,.3048
-175.62,-325.,22.289,.3048
-175.78,-321.,22.515,.3048
-175.43,-318.,22.837,.3048
-175.06,-305.,23.158,.3048
-175.29,-310.,23.448,.3048
-175.36,-321.,23.770,.3048

Execution of JOINT

During the execution of JOINT, the user signifies a 'yes' answer by typing a zero (0) and a 'no' answer by typing a one (1). The maximum number of polygons that the program can accept is 12. The maximum number of stations is 75. The program requires both a gravity and a magnetic value at each station. An elevation above the surface is required for the magnetic data. A maximum of 20 vertices can be input for any single polygon.

A number of options are available in JOINT which affect the cost, execution time, and results. A discussion of these options follows.

1. DO YOU WISH TO INVERT THIS MODEL?

An answer of 1 (no) to this question results in a solution of the forward problem only and the program skips options 2, 5, and 6. This is recommended during the early stages of modeling to obtain an approximate fit to the data.

2. If you answer 0 (yes) to the above, the number of iterations must be specified. The program will do any number of iterations but significant improvements in the model seldom occur after 2 iterations. The cost of executing the program is essentially increased by the number of iterations times the cost of the forward problem (about \$0.70).
3. The user can have the output written to any device number (6 is standard). There is some reduction in execution time and cost if a data file is used.
4. The estimated variances of the gravity and the magnetic data

depend upon the user's knowledge of the data. These are used to control the weighting of the two data sets.

5. Any number of different parameters can, in theory, be inverted on at once. During the preliminary tests, it was found that up to five vertical vertex adjustments worked well, but the horizontal adjustments were less stable. It was therefore easier to invert for no more than one horizontal vertex at a time. The magnetic susceptibility and density parameter inversions were highly unpredictable.
6. To identify the parameters to be adjusted, either the polygon number (for density or magnetic susceptibility inversions) or the reference numbers listed next to the vertices must be specified. In addition, the order of occurrence in the parameter vector must be specified. If two or more parameters are given the same order number, they will be combined and adjusted by the same amount.

Figure 14 is a flow diagram of JOINT. A program listing follows.

Figure 14. Flow chart of JOINT.

Listing of Simultaneous Modeling Program

The program listing (pages 180-207) is not included in this report. To obtain a listing or magnetic tape of this program, the reader may contact:

T. Killpack

Earth Science Laboratory

420 Chipeta Way

Salt Lake City, Utah 84108

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NOTIFICATION

concerning

Addenda and Errata (dated June 12, 1980) for Topical Report entitled "Detailed Gravity and Aeromagnetic Surveys in the Black Rock Desert Area, Utah", by Laura F. Serpa and Kenneth L. Cook, dated January 1980. (IDO/78-1701.a.5.3, DOE/ET28392-39, Contract No. DE-AC07-78ET28392).

In the attached Addenda and Errata of this Topical Report, it should be noted that in the listing of the principal facts of the gravity stations, only the two columns giving the "observed gravity" and "theoretical gravity" values were in error; and these are corrected in the revised listing. The error in these values was caused by an error in the computer program for the printout of the listing of these two columns only, and therefore did not involve the accuracy of the listing of the other columns in Table 2. Moreover, neither of these errors affects in any way the gravity maps, profiles, and/or interpretation of the gravity data in this Topical Report.

ID0/78-1701.a.5.3
DOE/ET/28392-39

ADDENDA and ERRATA

for

TOPICAL REPORT

Detailed Gravity and Aeromagnetic Surveys
in the Black Rock Desert Area, Utah

by

Laura F. Serpa and Kenneth L. Cook

Contract No. DE-AC07-78ET28392

Department of Geology and Geophysics
University of Utah
Salt Lake City, Utah 84112

January 1980

Prepared for

Department of Energy
Division of Geothermal Energy

June 12, 1980

ADDENDA

The principal facts of the gravity stations listed in Appendix A include terrain corrections and additional gravity stations not listed in the original report entitled "Principal Facts of Gravity Data for the Black Rock Desert Region and Vicinity, Millard County, Utah," by Laura S. Yurich and Kenneth L. Cook (DOE Contract No. EY-76-S-07-1601), open filed January 31, 1979 by the Department of Geology and Geophysics, University of Utah, Salt Lake City, Utah 84112. Additionally, for a few of these stations (all of which were designated with an "LY" prefix), corrections have been made to these original data open filed in 1979, and the corrected values are included in the listing in Appendix A.

ERRATA

In the topical report entitled "Detailed Gravity and Aeromagnetic Surveys in the Black Rock Desert Area, Utah" by Laura F. Serpa and Kenneth L. Cook, IDO/78 - 1701.a.5.3, DOE/ET/28392-34, Contract No. DE-AC07-78ET28392, January 1980, by the Department of Geology and Geophysics, University of Utah, Salt Lake City, Utah 84112, errors were found in the listing of the principal facts of the gravity stations (Appendix A, Table 2, pages 58 to 85, inclusive); and a revised listing of Table 2 is attached hereto. In the topical report, only the two columns giving the "observed gravity" and "theoretical gravity" values were in error; and these are corrected in the attached revised listing. The error in these values was caused by an error in the computer program for the printout of the listing of these two columns only, and therefore did not involve the accuracy of the listing for the other columns in Table 2.

In addition, errors were found in the listing of density values (Appendix B, Table 3, page 87); and a revised listing of Table 3 is attached hereto.

None of the above-mentioned errors affects in any way the gravity maps, profiles, and/or the interpretation of the gravity data given in this report.

APPENDIX A
LIST OF GRAVITY DATA

The gravity data taken in this study were computed with reference to a base station designated LY002, for which the observed gravity was taken as 979571.84 mgal. This value was obtained from ties between LY002 and the following base stations in the Utah gravity base station network (Cook et al., 1971): 1) Delta, Utah; 2) Beaver, Utah; 3) Milford, Utah; and 4) the University of Utah base station at Salt Lake City, Utah. A complete description of the gravity base station LY002 is given below. Additionally, LY002 was tied to LY001, which was the base station used by Isherwood (1967) and the University of Utah gravity class of 1977. A complete description of the gravity base station LY001 is given by Isherwood (1967, p. 28).

Description of gravity base station LY002

Gravity base station LY002 is located in front of the Millard County court house in Fillmore at a benchmark located beneath the flag pole. The bench mark is designated "U.S.G.S. H138" and is on the sidewalk about 1 meter north of the flagpole and about 10 meters east of the county court house building.

Table 2. Gravity Data -- Revised

Explanation of Listing of Principal Facts of Gravity Stations

	<u>Units</u>
Latitude	Degrees., minutes
Longitude	Degrees., minutes
Elevation	meters
Observed gravity	mgal
Theoretical gravity <u>1/</u>	mgal
Free-air gravity anomaly values	mgal
Simple Bouguer gravity anomaly values	mgal <u>2/</u>
Terrain Correction (T.C.) <u>3/</u>	mgal <u>2/</u>
Complete Bouguer gravity anomaly values	mgal <u>2/</u>

Stations taken during this study are prefixed by 'LY'. Stations taken by the University of Utah gravity class of 1977 are prefixed by '77'. Stations taken by Isherwood (1967) are prefixed by 'WI'.

The following stations were not used to produce the final complete Bouguer gravity anomaly map because they result in single point anomalies.

LY071

LY203

LY287

LY458

1/ Theoretical gravity at mean sea level, using the International Gravity Formula.

2/ A density of 2.67 g/cc was assumed for all calculations.

3/ Terrain correction out to a radial distance of 166.7 km from each station.

STAT.	LATITUDE		LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER	
LY001	38.	58.28	112.	21.12	1521.	979617.87	980089.41	-2.16	-172.17	1.15	-171.02
LY002	38.	58.07	112.	19.40	1565.	979606.00	980089.10	-.15	-175.08	1.67	-173.42
LY003	38.	57.00	112.	20.63	1535.	979610.84	980087.53	-3.00	-174.57	1.68	-172.89
LY004	38.	56.15	112.	21.70	1512.	979613.40	980086.27	-6.28	-175.28	1.67	-173.61
LY005	38.	56.12	112.	22.38	1492.	979617.72	980086.23	-8.09	-174.85	1.46	-173.40
LY006	38.	56.13	112.	23.18	1472.	979623.79	980086.25	-8.22	-172.75	1.23	-171.52
LY007	38.	56.13	112.	24.04	1458.	979627.91	980086.25	-8.41	-171.38	1.02	-170.36
LY008	38.	56.14	112.	24.60	1449.	979629.81	980086.26	-9.29	-171.25	.89	-170.36
LY009	38.	56.15	112.	25.17	1443.	979631.14	980086.27	-9.83	-171.12	.78	-170.34
LY010	38.	56.15	112.	25.75	1437.	979632.25	980086.27	-10.56	-171.18	.68	-170.50
LY011	38.	56.16	112.	26.30	1433.	979632.70	980086.29	-11.37	-171.54	.59	-170.95
LY012	38.	56.17	112.	26.86	1429.	979632.88	980086.30	-12.44	-172.17	.52	-171.65
LY013	38.	56.18	112.	27.46	1426.	979632.76	980086.32	-13.50	-172.89	.45	-172.44
LY014	38.	56.19	112.	27.91	1425.	979632.11	980086.34	-14.48	-173.76	.40	-173.36
LY015	38.	56.18	112.	28.53	1424.	979631.48	980086.32	-15.40	-174.57	.34	-174.23
LY016	38.	56.20	112.	29.10	1423.	979631.04	980086.35	-16.18	-175.24	.30	-174.94
LY017	38.	56.34	112.	29.91	1423.	979630.91	980086.57	-16.52	-175.58	.25	-175.33
LY018	38.	57.54	112.	29.67	1426.	979632.18	980088.33	-16.09	-175.48	.20	-175.28
LY019	38.	58.75	112.	22.28	1490.	979627.57	980090.11	-2.74	-169.28	.86	-168.42
LY020	38.	58.75	112.	23.98	1458.	979634.67	980090.11	-5.50	-168.47	.63	-167.85
LY021	38.	58.75	112.	24.82	1446.	979636.34	980090.11	-7.54	-169.17	.54	-168.63
LY022	38.	58.75	112.	25.67	1433.	979638.14	980090.11	-9.76	-169.93	.45	-169.49
LY023	38.	58.75	112.	26.24	1427.	979638.73	980090.11	-11.02	-170.52	.39	-170.13
LY024	38.	58.78	112.	25.80	1423.	979638.61	980090.15	-12.40	-171.46	.34	-171.12
LY025	38.	58.80	112.	27.37	1418.	979639.64	980090.18	-13.95	-172.45	.30	-172.15
LY026	38.	57.88	112.	25.80	1424.	979636.91	980088.83	-12.46	-171.65	.40	-171.25
LY027	38.	57.88	112.	25.66	1434.	979636.19	980088.83	-10.12	-170.40	.51	-169.89
LY028	38.	57.88	112.	24.25	1455.	979633.74	980088.83	-6.08	-168.71	.69	-168.02
LY029	38.	57.88	112.	23.13	1476.	979629.31	980088.83	-4.03	-169.01	.85	-168.16
LY030	38.	57.05	112.	24.15	1456.	979631.14	980087.60	-7.15	-169.89	.83	-169.06
LY031	38.	57.00	112.	23.13	1474.	979626.30	980087.53	-6.36	-171.12	1.02	-170.10
LY032	38.	54.81	112.	24.08	1472.	979622.59	980084.30	-7.46	-171.99	1.27	-170.72
LY033	38.	53.95	112.	25.22	1456.	979623.56	980083.04	-10.17	-172.91	1.12	-171.79

STAT.	LATITUDE		LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE POUGUER
77252	38.	50.01	112. 34.20	1448.	979611.93	980077.27	-18.49	-180.34	.32	-180.02
77253	38.	50.00	112. 34.74	1453.	979608.82	980077.26	-20.05	-182.46	.28	-182.18
77254	38.	50.38	112. 35.66	1478.	979602.04	980077.80	-19.66	-184.86	.18	-184.68
77301	38.	58.76	112. 21.17	1514.	979621.01	980090.12	-1.90	-171.13	1.06	-170.07
77303	38.	58.76	112. 23.42	1469.	979632.28	980090.12	-4.52	-168.72	.69	-168.03
77304	38.	59.41	112. 24.62	1451.	979637.28	980091.09	-6.04	-168.22	.51	-167.71
77305	39.	59.55	112. 25.14	1441.	979640.16	980091.29	-6.44	-167.51	.46	-167.05
77306	38.	59.63	112. 25.67	1434.	979641.49	980091.41	-7.39	-167.68	.38	-167.30
77307	38.	59.64	112. 26.23	1426.	979641.75	980091.42	-9.62	-169.01	.34	-168.68
77308	38.	59.64	112. 26.81	1421.	979641.98	980091.42	-10.93	-169.76	.29	-169.47
77309	38.	59.64	112. 27.48	1416.	979640.80	980091.42	-13.65	-171.92	.26	-171.66
77310	39.	.51	112. 27.79	1419.	979640.19	980092.70	-14.61	-173.22	.19	-173.03
77311	39.	.72	112. 28.29	1415.	979639.33	980093.01	-17.02	-175.18	.16	-175.02
77312	39.	.91	112. 28.72	1415.	979638.43	980093.29	-18.20	-176.36	.13	-176.23
77313	39.	1.10	112. 29.16	1417.	979636.52	980093.56	-19.77	-178.15	.10	-178.05
77314	39.	1.40	112. 29.68	1415.	979634.82	980094.00	-22.52	-180.68	.07	-180.61
77316	39.	1.59	112. 30.45	1408.	979635.13	980094.29	-24.63	-182.01	.07	-181.94
77320	39.	2.03	112. 32.16	1425.	979627.88	980094.92	-27.29	-186.57	-.03	-186.60
77324	39.	1.14	112. 34.53	1423.	979622.76	980093.62	-31.72	-190.78	-.08	-190.86
77327	38.	58.75	112. 20.30	1530.	979616.68	980090.11	-1.27	-172.29	1.26	-171.03
77328	38.	58.75	112. 18.92	1563.	979608.19	980090.11	.41	-174.29	1.74	-172.55
77330	38.	58.75	112. 17.81	1625.	979595.85	980090.11	7.20	-174.43	2.08	-172.35
77335	39.	4.66	112. 30.47	1479.	979626.80	980098.80	-15.59	-180.90	.10	-180.80
77336	39.	5.16	112. 31.32	1478.	979626.88	980099.52	-16.54	-181.74	.03	-181.71
77337	39.	5.87	112. 32.00	1452.	979635.48	980100.57	-17.01	-179.31	-.06	-179.37
77338	39.	4.94	112. 32.57	1461.	979628.29	980099.20	-20.06	-183.36	-.03	-183.39
77339	39.	3.97	112. 31.90	1466.	979626.40	980097.77	-18.97	-182.83	-.02	-182.85
77340	39.	2.78	112. 31.67	1468.	979623.53	980096.02	-19.47	-183.56	.03	-183.53
77341	39.	2.17	112. 30.65	1411.	979635.04	980095.12	-24.66	-182.37	.07	-182.30
77342	39.	2.83	112. 33.14	1437.	979624.66	980096.10	-27.99	-188.61	-.07	-188.67
77343	39.	3.72	112. 33.50	1440.	979626.04	980097.41	-26.99	-187.95	-.08	-188.03
77344	39.	4.35	112. 34.00	1437.	979627.59	980098.33	-27.29	-187.91	-.10	-188.01
77345	39.	4.85	112. 34.58	1422.	979631.26	980099.07	-28.99	-187.93	-.11	-188.04

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY067	38.	56.54	112.	33.69	1422.	979623.69	980086.86	-24.35	-183.29	.05	-183.24
LY068	38.	56.52	112.	33.92	1424.	979622.72	980086.83	-24.67	-183.84	.04	-183.80
LY069	38.	56.50	112.	34.14	1424.	979622.01	980086.80	-25.34	-184.51	.03	-184.48
LY070	38.	56.49	112.	34.38	1428.	979620.67	980086.79	-25.44	-185.06	.01	-185.05
LY071	38.	56.53	112.	34.59	1433.	979619.75	980086.84	-24.88	-185.05	.01	-185.04
LY072	38.	56.64	112.	34.77	1440.	979618.05	980087.01	-24.57	-185.53	.04	-185.49
LY073	38.	57.30	112.	36.13	1423.	979617.81	980087.97	-31.02	-190.08	-.05	-190.13
LY074	38.	56.56	112.	36.51	1426.	979614.49	980086.89	-32.34	-191.73	-.04	-191.77
LY075	38.	56.48	112.	35.96	1428.	979616.49	980086.77	-29.51	-189.22	-.03	-189.25
LY076	38.	56.46	112.	35.42	1430.	979617.45	980086.74	-28.00	-187.84	-.02	-187.86
LY077	38.	56.48	112.	35.20	1431.	979617.74	980086.77	-27.43	-187.38	-.01	-187.39
LY078	38.	56.48	112.	34.98	1430.	979618.70	980086.77	-26.78	-186.62	-.01	-186.63
LY079	38.	56.48	112.	34.74	1430.	979619.20	980086.77	-26.29	-186.12	.00	-186.12
LY080	38.	56.50	112.	34.56	1429.	979620.15	980086.80	-25.66	-185.39	.01	-185.38
LY081	38.	56.58	112.	36.94	1431.	979613.30	980086.91	-32.01	-191.96	-.06	-192.02
LY082	38.	57.00	112.	18.35	1630.	979591.92	980087.53	7.40	-174.79	2.55	-172.24
LY083	38.	56.15	112.	18.00	1696.	979575.82	980086.27	12.92	-176.65	3.53	-173.12
LY83A	38.	57.06	112.	17.38	1688.	979580.26	980087.62	13.56	-175.12	2.88	-172.24
LY084	38.	57.26	112.	16.70	1641.	979590.55	980087.91	9.05	-174.37	4.12	-170.25
LY085	38.	57.70	112.	15.83	1737.	979572.76	980088.56	20.23	-173.92	3.73	-170.19
LY086	38.	58.07	112.	16.42	1742.	979572.45	980089.10	20.92	-173.79	2.84	-170.95
LY087	38.	58.75	112.	16.68	1707.	979581.07	980090.11	17.73	-173.07	2.63	-170.44
LY088	38.	58.75	112.	15.28	1833.	979553.42	980090.11	28.96	-175.92	3.65	-172.27
LY089	39.	6.86	112.	16.90	1532.	979630.07	980102.03	.81	-170.43	.93	-169.50
LY090	39.	7.24	112.	20.05	1468.	979646.59	980102.60	-2.99	-167.08	.51	-166.57
LY091	38.	55.96	112.	37.24	1441.	979610.16	980086.00	-31.15	-192.22	-.05	-192.27
LY092	38.	54.99	112.	37.88	1449.	979606.52	980084.57	-30.90	-192.86	-.04	-192.90
LY093	38.	54.46	112.	38.10	1458.	979604.09	980083.80	-29.77	-192.74	-.02	-192.76
LY094	38.	53.03	112.	38.04	1490.	979596.29	980081.70	-25.61	-192.15	.06	-192.09
LY095	38.	52.65	112.	38.32	1484.	979595.99	980081.13	-27.19	-193.06	.31	-192.75
LY096	38.	58.20	112.	34.93	1418.	979621.15	980089.29	-30.55	-189.05	-.04	-189.09
LY097	38.	58.59	112.	35.23	1265.	979651.00	980089.87	-48.51	-189.90	1.75	-188.15
LY098	38.	59.36	112.	34.71	1422.	979621.48	980091.00	-30.70	-189.64	-.06	-189.70

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER	
LY034	38.	54.61	112. 25.20	1448.	979626.94	980084.02	-10.23	-172.08	1.04	-171.04
LY035	38.	55.08	112. 27.17	1431.	979629.79	980084.70	-13.31	-173.26	.58	-172.68
LY036	38.	53.39	112. 25.12	1462.	979620.36	980082.23	-10.70	-174.11	1.22	-172.89
LY037	38.	57.87	112. 27.92	1419.	979636.09	980088.81	-14.82	-173.43	.31	-173.12
LY038	38.	57.87	112. 29.04	1421.	979634.07	980088.81	-16.23	-175.06	.23	-174.83
LY039	38.	56.21	112. 30.20	1425.	979630.59	980086.36	-16.02	-175.30	.24	-175.06
LY040	38.	56.22	112. 30.43	1425.	979630.26	980086.37	-16.37	-175.65	.22	-175.43
LY041	38.	56.25	112. 30.65	1426.	979629.77	980086.42	-16.60	-175.99	.21	-175.78
LY042	38.	56.22	112. 30.79	1427.	979629.60	980086.37	-16.41	-175.91	.29	-175.62
LY043	38.	56.13	112. 31.11	1429.	979628.41	980086.25	-16.95	-176.58	.20	-176.38
LY044	38.	56.28	112. 31.33	1430.	979627.63	980086.48	-17.55	-177.39	.16	-177.23
LY045	38.	56.33	112. 31.53	1428.	979627.62	980086.55	-18.26	-177.87	.15	-177.72
LY046	38.	56.42	112. 31.75	1428.	979627.14	980086.69	-18.87	-178.49	.14	-178.35
LY047	38.	56.46	112. 31.98	1426.	979626.78	980086.74	-19.91	-179.30	.13	-179.17
LY048	38.	56.49	112. 32.21	1424.	979626.94	980086.79	-20.41	-179.58	.15	-179.43
LY049	38.	56.49	112. 32.32	1424.	979626.79	980086.79	-20.56	-179.73	.10	-179.63
LY050	38.	56.50	112. 32.53	1421.	979626.69	980086.80	-21.59	-180.42	.11	-180.31
LY051	38.	56.50	112. 32.64	1421.	979626.47	980086.80	-21.81	-180.64	.11	-180.53
LY052	38.	56.50	112. 32.90	1421.	979625.66	980086.80	-22.62	-181.45	.08	-181.37
LY053	38.	56.50	112. 33.15	1420.	979625.47	980086.80	-23.12	-181.84	.11	-181.73
LY054	38.	56.55	112. 33.47	1422.	979624.13	980086.87	-23.93	-182.87	.06	-182.81
LY055	38.	53.71	112. 23.83	1492.	979616.36	980082.69	-5.90	-172.67	1.62	-171.05
LY056	38.	53.70	112. 22.64	1549.	979605.22	980082.68	.56	-172.58	2.18	-170.40
LY057	38.	53.83	112. 21.31	1632.	979584.40	980082.87	5.16	-177.26	3.10	-174.16
LY058	38.	53.83	112. 20.48	1696.	979571.99	980082.87	12.50	-177.07	4.13	-172.94
LY059	38.	53.46	112. 20.08	1736.	979562.65	980082.33	16.04	-178.00	5.70	-172.30
LY060	38.	53.00	112. 20.18	1875.	979532.18	980081.66	29.14	-180.44	4.90	-175.54
LY061	38.	53.29	112. 19.25	1814.	979543.11	980082.08	20.82	-181.94	8.32	-173.63
LY062	38.	52.65	112. 18.22	1947.	979512.10	980081.13	31.81	-185.82	15.59	-170.23
LY063	38.	54.40	112. 19.63	1722.	979566.42	980083.71	14.11	-178.37	4.83	-173.54
LY064	38.	55.22	112. 20.15	1613.	979592.33	980084.92	5.17	-175.12	3.12	-172.00
LY065	38.	55.15	112. 18.83	1737.	979565.66	980084.80	16.88	-177.27	4.56	-172.71
LY066	38.	56.35	112. 19.29	1621.	979590.60	980086.58	4.26	-176.93	2.53	-174.40

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY099	38.	59.89	112.	34.05	1420.	979623.33	980091.78	-30.25	-188.97	-.05	-189.02
LY100	38.	58.96	112.	34.06	1422.	979622.84	980090.41	-28.75	-187.69	-.04	-187.73
LY101	38.	57.84	112.	34.72	1418.	979621.65	980088.77	-29.52	-188.02	-.02	-188.04
LY102	38.	57.24	112.	34.21	1421.	979622.63	980087.87	-26.73	-185.56	.01	-185.56
LY103	38.	58.06	112.	33.96	1420.	979622.83	980089.09	-28.05	-186.77	.00	-186.77
LY104	38.	58.54	112.	33.13	1418.	979625.67	980089.80	-26.54	-185.04	.03	-185.01
LY105	38.	58.63	112.	32.06	1422.	979628.89	980089.94	-22.23	-181.17	.05	-181.12
LY106	38.	58.91	112.	31.12	1429.	979630.65	980090.34	-19.71	-178.44	.29	-178.16
LY107	38.	54.51	112.	29.25	1428.	979629.13	980083.87	-14.07	-173.68	.38	-173.30
LY108	38.	55.32	112.	29.67	1427.	979629.68	980085.06	-15.02	-174.52	.30	-174.22
LY109	38.	54.20	112.	29.71	1429.	979628.61	980083.42	-13.82	-173.55	.36	-173.19
LY110	38.	54.19	112.	30.52	1428.	979629.67	980083.41	-13.07	-172.68	.32	-172.36
LY111	38.	53.75	112.	31.04	1429.	979628.63	980082.75	-13.13	-172.86	.32	-172.54
LY112	38.	53.56	112.	31.38	1437.	979626.40	980082.47	-12.62	-173.24	.28	-172.96
LY113	38.	53.41	112.	31.61	1438.	979625.29	980082.25	-13.20	-173.93	.27	-173.67
LY114	38.	53.21	112.	31.96	1434.	979625.17	980081.96	-14.26	-174.55	.28	-174.27
LY115	38.	52.97	112.	32.31	1432.	979624.20	980081.61	-15.50	-175.56	.26	-175.30
LY116	38.	53.28	112.	32.49	1444.	979622.47	980082.06	-13.98	-175.38	.22	-175.16
LY117	38.	53.48	112.	33.06	1440.	979622.08	980082.35	-15.89	-176.85	.19	-176.66
LY118	38.	53.56	112.	33.61	1447.	979618.74	980082.47	-17.19	-178.93	.13	-178.80
LY119	38.	53.50	112.	34.01	1446.	979617.88	980082.38	-18.27	-179.90	.14	-179.76
LY120	38.	53.08	112.	34.39	1451.	979614.66	980081.77	-19.35	-181.53	.16	-181.37
LY121	38.	54.04	112.	33.04	1443.	979619.21	980083.17	-18.66	-179.95	.16	-179.79
LY122	38.	54.43	112.	34.03	1433.	979620.30	980083.76	-21.24	-181.41	.16	-181.25
LY123	38.	55.31	112.	33.98	1434.	979619.26	980085.05	-23.27	-183.55	.08	-183.47
LY124	39.	.28	112.	21.15	1498.	979629.48	980092.35	-.59	-168.03	.88	-167.15
LY125	39.	.28	112.	22.28	1486.	979632.93	980092.35	-.95	-166.95	.70	-166.25
LY126	39.	.89	112.	22.29	1501.	979632.02	980093.26	1.96	-165.81	.73	-165.08
LY127	39.	1.83	112.	22.29	1472.	979639.19	980094.64	-1.20	-165.73	.63	-165.10
LY128	39.	2.25	112.	22.24	1459.	979642.67	980095.24	-2.33	-165.41	.57	-164.84
LY129	39.	2.26	112.	21.72	1464.	979641.93	980095.25	-1.53	-165.17	.67	-164.50
LY130	39.	2.26	112.	21.15	1482.	979638.05	980095.25	.14	-165.51	.80	-164.71
LY131	39.	2.98	112.	21.72	1453.	979644.51	980096.32	-3.42	-165.83	.62	-165.21

STAT.	LATITUDE		LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER	
LY132	39.	3.73	112.	21.71	1454.	979644.45	980097.42	-4.27	-166.79	.54	-166.25
LY133	39.	4.42	112.	21.19	1459.	979644.72	980098.45	-3.48	-166.56	.54	-166.02
LY134	39.	4.88	112.	21.15	1455.	979644.88	980099.12	-5.23	-167.86	.52	-167.34
LY135	39.	4.86	112.	22.28	1453.	979643.64	980099.09	-7.06	-169.47	.40	-169.07
LY136	39.	5.85	112.	21.15	1455.	979645.21	980100.55	-6.33	-168.96	.46	-168.50
LY137	39.	5.75	112.	22.27	1440.	979646.44	980100.40	-9.58	-170.54	.36	-170.18
LY138	39.	6.65	112.	22.28	1440.	979650.24	980101.73	-7.10	-168.06	.33	-167.73
LY139	39.	6.64	112.	16.00	1570.	979621.42	980101.71	4.21	-171.28	1.14	-170.14
LY140	39.	5.52	112.	16.26	1558.	979623.19	980100.06	3.91	-170.23	1.46	-168.77
LY141	38.	55.85	112.	34.72	1436.	979617.29	980085.84	-25.40	-185.91	.05	-185.86
LY142	38.	55.22	112.	35.14	1448.	979609.92	980084.92	-28.16	-190.01	.05	-189.96
LY143	38.	54.86	112.	35.75	1469.	979608.59	980084.38	-22.46	-186.66	.02	-186.64
LY144	38.	53.45	112.	35.73	1481.	979605.67	980082.31	-19.51	-185.15	.07	-185.08
LY145	38.	51.80	112.	35.85	1489.	979598.54	980079.87	-21.84	-188.27	.14	-188.13
LY146	38.	52.54	112.	37.41	1524.	979589.38	980080.97	-21.29	-191.63	.15	-191.48
LY147	38.	49.64	112.	36.34	1494.	979592.65	980076.73	-23.04	-190.03	.18	-189.85
LY148	38.	49.57	112.	32.21	1435.	979616.63	980076.62	-17.11	-177.51	.52	-176.99
LY149	38.	47.82	112.	26.55	1528.	979595.01	980074.05	-7.50	-178.29	1.65	-176.64
LY150	39.	.20	112.	17.49	1619.	979599.79	980092.23	7.16	-173.80	1.82	-171.98
LY151	39.	4.84	112.	15.80	1599.	979610.42	980099.05	4.81	-173.92	1.52	-172.40
LY152	39.	5.87	112.	16.76	1533.	979629.43	980100.57	1.94	-169.41	1.13	-168.28
LY153	39.	5.97	112.	17.57	1510.	979634.35	980100.57	-.24	-169.02	.95	-168.07
LY154	39.	5.75	112.	18.89	1484.	979641.22	980100.40	-1.23	-167.10	.77	-166.33
LY155	39.	4.88	112.	18.88	1499.	979638.65	980099.12	2.12	-165.43	.80	-164.63
LY156	39.	4.05	112.	18.89	1520.	979633.73	980097.89	4.91	-164.99	.85	-164.14
LY157	39.	5.78	112.	19.75	1468.	979645.20	980100.45	-2.22	-166.31	.66	-165.65
LY158	39.	5.76	112.	20.39	1461.	979645.83	980100.41	-3.73	-167.03	.57	-166.46
LY159	39.	4.05	112.	20.87	1470.	979642.89	980097.89	-1.36	-165.57	.63	-165.04
LY160	39.	3.12	112.	20.21	1521.	979633.41	980096.52	6.26	-163.75	.92	-162.83
LY161	39.	1.21	112.	21.15	1492.	979633.27	980093.73	-.03	-166.80	.83	-165.97
LY162	38.	56.18	112.	27.09	1429.	979632.85	980086.32	-12.48	-172.21	.48	-171.73
LY163	38.	56.18	112.	27.30	1428.	979632.74	980086.32	-12.90	-172.52	.46	-172.06
LY164	38.	56.19	112.	27.68	1426.	979632.45	980086.34	-13.83	-173.22	.42	-172.80

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY165	38.	56.18	112.	28.19	1426.	979631.69	980086.32	-14.58	-173.97	.37	-173.60
LY166	38.	56.19	112.	28.75	1424.	979631.19	980086.34	-15.70	-174.87	.32	-174.55
LY167	38.	56.20	112.	29.30	1423.	979631.00	980086.35	-16.22	-175.28	.29	-174.99
LY168	38.	56.20	112.	29.78	1422.	979630.84	980086.35	-16.59	-175.63	.27	-175.36
LY169	38.	56.21	112.	30.00	1423.	979630.74	980086.36	-16.48	-175.54	.25	-175.29
LY170	38.	55.53	112.	31.61	1454.	979620.67	980085.37	-16.01	-178.53	.14	-178.39
LY171	38.	54.77	112.	31.82	1457.	979617.91	980084.25	-16.71	-179.57	.19	-179.38
LY172	38.	48.92	112.	31.95	1439.	979613.98	980075.66	-17.62	-178.46	.64	-177.82
LY173	38.	48.48	112.	31.95	1443.	979611.79	980075.02	-17.93	-179.22	.71	-178.51
LY174	38.	47.79	112.	31.95	1449.	979609.83	980074.01	-17.02	-178.98	.87	-178.11
LY175	38.	47.79	112.	32.50	1444.	979609.66	980074.01	-18.74	-180.14	.80	-179.34
LY176	38.	47.36	112.	32.55	1451.	979607.85	980073.37	-17.76	-179.94	.89	-179.05
LY177	38.	47.91	112.	33.07	1444.	979609.19	980074.18	-19.38	-180.78	.69	-180.09
LY178	38.	48.47	112.	32.50	1439.	979611.66	980075.01	-19.28	-180.12	.65	-179.47
LY179	38.	50.25	112.	33.60	1434.	979616.20	980077.62	-18.89	-179.18	.36	-178.82
LY180	38.	49.89	112.	32.86	1434.	979617.03	980077.09	-17.54	-177.82	.43	-177.39
LY181	38.	48.25	112.	35.92	1515.	979585.19	980074.67	-21.96	-191.30	.24	-191.06
LY182	38.	47.36	112.	36.97	1533.	979581.80	980073.37	-18.50	-189.85	.32	-189.53
LY183	38.	46.73	112.	37.00	1549.	979578.07	980072.45	-16.36	-189.50	.36	-189.15
LY184	38.	45.56	112.	36.14	1540.	979578.07	980070.73	-17.42	-189.55	.57	-188.98
LY185	38.	46.05	112.	34.75	1483.	979594.32	980071.45	-19.49	-185.25	.85	-184.40
LY186	38.	46.73	112.	35.94	1522.	979585.66	980072.45	-16.10	-186.22	.49	-185.73
LY187	38.	47.26	112.	35.60	1512.	979591.40	980073.23	-15.24	-184.24	.45	-183.80
LY188	38.	48.02	112.	34.37	1445.	979607.31	980074.34	-21.11	-182.62	.55	-182.07
LY189	38.	48.09	112.	35.62	1517.	979591.39	980074.45	-14.92	-184.43	.39	-184.09
LY190	38.	50.23	112.	36.69	1494.	979594.04	980077.59	-22.51	-189.50	.13	-189.37
LY191	38.	50.72	112.	37.00	1494.	979594.46	980078.32	-22.82	-189.81	.14	-189.67
LY192	38.	52.09	112.	37.09	1511.	979591.51	980080.31	-22.52	-191.41	.12	-191.29
LY193	38.	51.60	112.	34.53	1465.	979608.60	980079.59	-18.89	-182.64	.17	-182.47
LY194	38.	50.90	112.	35.66	1483.	979602.06	980078.58	-18.87	-184.63	.15	-184.48
LY195	38.	45.53	112.	33.49	1516.	979591.63	980070.68	-11.22	-180.67	1.18	-179.49
LY196	38.	45.36	112.	32.53	1586.	979576.75	980070.44	-4.25	-181.53	1.52	-180.01
LY197	38.	46.51	112.	31.41	1517.	979594.57	980072.12	-9.42	-178.98	1.56	-177.42

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY198	38. 46.67	112. 30.65	1533.	979591.80	980072.36	-7.48	-179.83	1.29	-177.54
LY199	38. 46.83	112. 29.14	1541.	979589.41	980072.59	-7.63	-179.88	1.41	-178.47
LY200	38. 46.98	112. 28.03	1531.	979590.80	980072.81	-9.55	-180.68	1.64	-179.05
LY201	38. 47.14	112. 26.95	1527.	979592.61	980073.05	-9.22	-179.90	2.09	-177.82
LY202	38. 47.74	112. 27.33	1514.	979596.40	980073.93	-10.31	-179.54	1.50	-178.04
LY203	38. 47.69	112. 25.59	1547.	979597.98	980073.86	1.52	-171.40	2.00	-169.40
LY204	38. 48.21	112. 26.55	1521.	979597.51	980074.62	-7.73	-177.74	1.54	-176.20
LY205	38. 46.82	112. 26.65	1557.	979585.28	980072.58	-6.82	-180.85	2.72	-178.13
LY206	38. 45.60	112. 26.35	1680.	979555.16	980070.78	2.82	-184.96	3.59	-181.37
LY207	38. 45.12	112. 29.17	1663.	979557.17	980070.09	.28	-185.60	4.08	-181.52
LY208	38. 47.31	112. 25.19	1563.	979585.52	980073.30	-5.45	-180.15	2.34	-177.81
LY209	38. 46.92	112. 25.51	1579.	979580.56	980072.72	-4.89	-181.38	2.38	-179.00
LY210	38. 45.61	112. 25.32	1737.	979541.30	980070.90	6.53	-187.62	3.59	-184.03
LY211	38. 49.11	112. 25.21	1511.	979602.96	980075.95	-6.70	-175.59	1.93	-173.66
LY212	38. 49.11	112. 24.28	1534.	979596.15	980075.95	-6.41	-177.87	2.57	-175.30
LY213	38. 49.89	112. 23.76	1547.	979595.26	980077.09	-4.43	-177.35	2.84	-174.51
LY214	38. 49.84	112. 23.07	1600.	979583.13	980077.02	-.14	-178.98	3.67	-175.31
LY215	38. 50.64	112. 23.68	1553.	979596.85	980078.19	-2.08	-175.67	2.65	-173.03
LY216	38. 51.38	112. 22.93	1561.	979595.74	980079.27	-1.81	-176.29	3.27	-173.02
LY217	38. 52.17	112. 23.38	1519.	979607.82	980080.43	-3.85	-173.64	2.46	-171.18
LY218	38. 52.38	112. 24.82	1468.	979617.43	980080.73	-10.28	-174.37	1.56	-172.82
LY219	38. 52.42	112. 25.80	1455.	979620.30	980080.80	-11.49	-174.12	1.17	-172.95
LY220	38. 52.42	112. 26.36	1454.	979622.09	980080.80	-10.02	-172.54	1.00	-171.54
LY221	38. 52.43	112. 27.20	1455.	979622.77	980080.81	-9.04	-171.67	.81	-170.86
LY222	38. 52.12	112. 29.02	1457.	979621.03	980080.36	-9.65	-172.51	.55	-171.96
LY223	38. 51.90	112. 28.37	1458.	979621.28	980080.04	-8.82	-171.79	.65	-171.14
LY224	38. 51.10	112. 28.35	1459.	979620.04	980078.87	-8.59	-171.67	.73	-170.94
LY225	38. 50.42	112. 25.55	1480.	979611.89	980077.87	-9.26	-174.69	1.57	-173.12
LY226	38. 49.77	112. 26.35	1486.	979608.53	980076.92	-9.82	-175.92	1.35	-174.57
LY227	38. 49.12	112. 27.75	1489.	979607.62	980075.96	-8.84	-175.27	1.09	-174.18
LY228	38. 49.15	112. 28.31	1483.	979610.12	980076.00	-8.23	-173.99	.99	-173.00
LY229	38. 49.78	112. 28.32	1475.	979614.49	980076.94	-7.28	-172.15	.89	-171.26
LY230	38. 51.10	112. 26.39	1464.	979616.12	980078.87	-10.97	-174.61	1.17	-173.44

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY264	38. 48.23	112. 27.54	1504.	979599.54	980074.65	-10.98	-179.09	1.31	-177.78
LY265	38. 48.23	112. 27.83	1500.	979600.91	980074.65	-10.85	-178.51	1.28	-177.23
LY266	38. 48.23	112. 28.03	1498.	979601.97	980074.65	-10.40	-177.84	1.22	-176.62
LY267	38. 48.24	112. 28.32	1497.	979603.02	980074.66	-9.67	-177.00	1.17	-175.93
LY268	38. 48.23	112. 28.60	1500.	979602.38	980074.65	-9.38	-177.04	1.18	-175.86
LY269	38. 48.51	112. 28.86	1502.	979601.53	980075.07	-10.03	-177.92	1.27	-176.65
LY270	38. 49.76	112. 25.78	1491.	979608.00	980076.91	-9.79	-175.45	1.58	-173.88
LY271	38. 50.87	112. 24.70	1488.	979612.25	980078.54	-7.10	-173.42	1.94	-171.48
LY272	38. 50.98	112. 29.15	1464.	979618.22	980078.70	-8.69	-172.33	.63	-171.70
LY273	38. 50.66	112. 29.78	1458.	979618.82	980078.22	-9.46	-172.43	.59	-171.84
LY274	38. 51.99	112. 29.87	1455.	979620.21	980080.17	-10.96	-173.59	.47	-173.12
LY275	38. 51.53	112. 30.82	1449.	979620.07	980079.48	-12.26	-174.22	.42	-173.80
LY276	38. 51.80	112. 31.19	1444.	979622.07	980079.87	-12.20	-173.60	.38	-173.22
LY277	38. 49.34	112. 29.98	1462.	979614.55	980076.28	-10.57	-173.98	.75	-173.23
LY278	38. 47.79	112. 29.13	1518.	979595.72	980074.01	-9.84	-179.51	1.12	-178.39
LY279	38. 47.13	112. 29.14	1532.	979591.82	980073.04	-8.45	-179.69	1.28	-178.41
LY280	38. 47.13	112. 29.74	1518.	979594.25	980073.04	-10.34	-180.01	1.24	-178.77
LY281	38. 47.54	112. 28.75	1518.	979595.78	980073.64	-9.42	-179.09	1.37	-177.72
LY282	38. 48.90	112. 29.70	1475.	979609.00	980075.63	-11.45	-176.32	.89	-175.43
LY283	38. 48.90	112. 29.98	1462.	979611.15	980075.63	-13.32	-176.73	.89	-175.84
LY284	38. 48.90	112. 30.25	1465.	979611.39	980075.63	-12.15	-175.90	.81	-175.09
LY285	38. 48.90	112. 30.53	1462.	979612.77	980075.63	-11.70	-175.11	.77	-174.34
LY286	38. 48.90	112. 30.81	1449.	979613.95	980075.63	-14.53	-176.49	.76	-175.73
LY287	38. 48.91	112. 31.08	1446.	979610.84	980075.65	-18.58	-180.21	.73	-179.48
LY288	38. 48.91	112. 31.38	1444.	979613.73	980075.65	-16.31	-177.71	.69	-177.02
LY289	38. 48.91	112. 31.66	1441.	979613.86	980075.65	-17.10	-178.17	.68	-177.49
LY290	38. 48.92	112. 32.22	1437.	979613.95	980075.66	-18.26	-178.88	.60	-178.28
LY291	38. 48.92	112. 32.49	1437.	979613.62	980075.66	-19.59	-179.21	.58	-178.63
LY292	38. 48.91	112. 32.78	1436.	979613.30	980075.65	-19.20	-179.71	.55	-179.16
LY293	38. 48.91	112. 33.09	1437.	979612.73	980075.65	-19.47	-180.09	.53	-179.56
LY294	38. 48.91	112. 33.36	1437.	979612.42	980075.65	-19.78	-180.40	.50	-179.90
LY295	38. 48.91	112. 33.61	1437.	979612.19	980075.65	-20.01	-180.63	.48	-180.15
LY296	38. 48.90	112. 33.93	1438.	979611.96	980075.63	-19.91	-180.64	.46	-180.18

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY231	38.	51.31	112.	25.20	1471.	979614.99	980079.16	-10.23	-174.65	1.60	-173.05
LY232	38.	51.31	112.	24.41	1490.	979612.12	980079.16	-7.24	-173.78	2.03	-171.75
LY233	38.	50.65	112.	29.16	1461.	979619.02	980078.20	-8.33	-171.63	.66	-170.97
LY234	38.	50.85	112.	29.85	1459.	979618.71	980078.51	-9.56	-172.64	.59	-172.06
LY235	38.	50.90	112.	29.35	1462.	979618.53	980078.58	-8.88	-172.30	.62	-171.68
LY236	38.	51.48	112.	29.18	1467.	979619.47	980079.41	-7.24	-171.21	.59	-170.62
LY237	38.	51.61	112.	29.09	1465.	979620.12	980079.60	-7.39	-171.14	.59	-170.55
LY238	38.	51.70	112.	29.26	1461.	979620.63	980079.73	-8.25	-171.55	.56	-170.99
LY239	38.	51.97	112.	28.98	1459.	979620.96	980080.14	-8.94	-172.02	.58	-171.45
LY240	38.	51.51	112.	29.60	1460.	979620.23	980079.45	-8.67	-171.86	.54	-171.32
LY241	38.	51.30	112.	29.36	1491.	979613.44	980079.15	-5.59	-172.25	.81	-171.44
LY242	38.	48.22	112.	23.54	1611.	979577.70	980074.63	.22	-179.85	3.42	-176.43
LY243	38.	48.34	112.	22.91	1662.	979566.71	980074.82	4.78	-180.99	4.48	-176.52
LY244	38.	48.23	112.	24.10	1569.	979586.09	980074.65	-4.38	-179.75	2.88	-176.87
LY245	38.	48.23	112.	24.65	1547.	979591.11	980074.65	-6.14	-179.06	2.46	-176.60
LY246	38.	48.23	112.	25.49	1534.	979595.06	980074.65	-6.21	-177.67	1.91	-175.76
LY247	38.	48.71	112.	26.18	1514.	979600.58	980075.36	-7.56	-176.79	1.56	-175.23
LY248	38.	48.70	112.	26.39	1510.	979600.56	980075.34	-8.80	-177.58	1.50	-176.08
LY249	38.	48.70	112.	26.63	1507.	979600.66	980075.34	-9.62	-178.07	1.43	-176.64
LY250	38.	48.70	112.	26.92	1505.	979600.63	980075.34	-10.28	-178.50	1.35	-177.15
LY251	38.	48.69	112.	27.21	1501.	979601.34	980075.33	-10.79	-178.56	1.28	-177.28
LY252	38.	48.68	112.	27.35	1501.	979601.80	980075.31	-10.31	-178.08	1.28	-176.80
LY253	38.	48.68	112.	27.74	1496.	979604.02	980075.31	-9.63	-176.85	1.17	-175.68
LY254	38.	48.92	112.	27.75	1493.	979605.93	980075.66	-9.00	-175.88	1.13	-174.75
LY255	38.	48.90	112.	28.31	1487.	979607.85	980075.63	-8.90	-175.11	1.03	-174.08
LY256	38.	48.90	112.	28.01	1490.	979606.76	980075.63	-9.07	-175.61	1.08	-174.53
LY257	38.	48.90	112.	29.43	1479.	979608.76	980075.63	-10.46	-175.77	.89	-174.88
LY258	38.	48.90	112.	29.14	1476.	979609.31	980075.63	-10.84	-175.82	.96	-174.86
LY259	38.	48.90	112.	28.87	1477.	979609.06	980075.63	-10.78	-175.87	.99	-174.88
LY260	38.	48.90	112.	28.66	1480.	979608.77	980075.63	-10.14	-175.57	1.00	-174.57
LY261	38.	49.35	112.	29.15	1471.	979612.89	980076.29	-9.46	-173.88	.85	-173.03
LY262	38.	48.22	112.	26.93	1515.	979597.64	980074.63	-9.47	-178.81	1.44	-177.37
LY263	38.	48.23	112.	27.21	1509.	979598.19	980074.65	-10.79	-179.46	1.39	-178.07

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY297	38.	48.90	112.	34.19	1443.	979611.27	980075.63	-19.06	-180.35	.44	-179.91
LY298	38.	48.91	112.	34.50	1457.	979608.64	980075.65	-17.38	-180.24	.40	-179.84
LY299	38.	48.91	112.	34.78	1457.	979607.45	980075.65	-18.57	-181.43	.37	-181.06
LY300	38.	48.91	112.	35.05	1467.	979604.98	980075.65	-17.96	-181.93	.35	-181.58
LY301	38.	48.91	112.	35.31	1482.	979600.65	980075.65	-17.66	-183.31	2.40	-180.91
LY302	38.	48.91	112.	35.60	1489.	979597.75	980075.65	-18.40	-184.83	.27	-184.56
LY303	38.	48.91	112.	35.94	1492.	979594.84	980075.65	-20.38	-187.15	.25	-186.90
LY304	38.	48.91	112.	36.40	1497.	979591.06	980075.65	-22.62	-189.95	.21	-189.74
LY305	38.	48.91	112.	36.85	1500.	979589.15	980075.65	-23.61	-191.27	.19	-191.08
LY306	38.	48.91	112.	37.43	1498.	979583.19	980075.65	-25.18	-192.62	.18	-192.44
LY307	38.	48.92	112.	38.04	1491.	979587.22	980075.66	-28.32	-194.98	.16	-194.82
LY308	38.	48.92	112.	38.61	1491.	979586.97	980075.66	-28.57	-195.23	.17	-195.06
LY309	38.	48.92	112.	39.28	1482.	979586.52	980075.66	-31.81	-197.46	.13	-197.33
LY310	38.	49.61	112.	39.91	1466.	979591.88	980076.69	-32.41	-196.27	.08	-196.19
LY311	38.	49.68	112.	40.48	1464.	979591.19	980076.79	-33.81	-197.45	.06	-197.39
LY312	38.	49.70	112.	41.08	1462.	979590.51	980076.82	-35.14	-198.56	.05	-198.51
LY313	38.	49.71	112.	41.62	1461.	979590.47	980076.83	-35.50	-198.80	.04	-198.76
LY314	38.	49.71	112.	42.19	1458.	979590.55	980076.83	-36.33	-199.30	.03	-199.27
LY315	38.	49.74	112.	42.78	1457.	979590.44	980076.87	-36.81	-199.67	.02	-199.65
LY316	38.	49.91	112.	43.22	1456.	979590.35	980077.12	-37.46	-200.20	.00	-200.20
LY317	38.	50.08	112.	43.70	1458.	979590.56	980077.37	-36.87	-199.84	-.02	-199.86
LY318	38.	50.08	112.	44.50	1458.	979591.73	980077.37	-35.70	-198.67	-.03	-198.70
LY319	38.	50.08	112.	44.81	1460.	979593.63	980077.37	-33.19	-196.38	-.03	-196.41
LY320	38.	51.07	112.	38.13	1469.	979597.15	980078.83	-28.35	-192.55	.18	-192.37
LY321	38.	51.88	112.	38.22	1466.	979599.52	980080.01	-28.09	-191.95	.09	-191.86
LY322	38.	52.03	112.	39.53	1455.	979598.48	980080.23	-32.74	-195.37	-.01	-195.38
LY323	38.	51.88	112.	40.59	1455.	979596.74	980080.01	-34.26	-196.89	-.03	-196.92
LY324	38.	51.56	112.	42.51	1454.	979594.62	980079.53	-36.21	-198.73	-.05	-198.78
LY325	38.	51.11	112.	41.82	1456.	979594.38	980078.88	-35.19	-197.93	-.03	-197.96
LY326	38.	50.66	112.	41.14	1455.	979594.27	980078.22	-34.94	-197.57	.00	-197.57
LY327	38.	50.30	112.	40.52	1458.	979593.62	980077.70	-34.14	-197.11	.03	-197.08
LY328	38.	50.92	112.	39.62	1456.	979597.44	980078.61	-31.86	-194.60	.03	-194.57
LY329	38.	52.30	112.	40.20	1456.	979597.40	980080.62	-33.91	-196.65	-.03	-196.68

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY330	38.	50.67	112.	43.23	1457.	979591.94	980078.23	-36.67	-199.53	-.04	-199.57
LY331	38.	50.15	112.	41.83	1459.	979592.22	980077.48	-35.01	-198.09	.01	-198.08
LY332	38.	51.06	112.	40.48	1454.	979596.39	980078.81	-33.72	-196.24	.00	-196.24
LY333	38.	48.27	112.	39.90	1499.	979580.04	980074.70	-32.08	-199.63	.15	-199.48
LY334	38.	47.80	112.	43.32	1505.	979582.99	980074.02	-26.59	-194.81	.32	-194.49
LY335	38.	47.25	112.	42.76	1508.	979577.21	980073.22	-30.64	-199.20	.27	-198.93
LY336	38.	46.54	112.	43.08	1519.	979572.30	980072.16	-31.10	-200.89	.23	-200.66
LY337	38.	46.29	112.	43.69	1530.	979570.28	980071.80	-29.37	-200.39	.22	-200.17
LY338	38.	45.89	112.	44.68	1541.	979566.59	980071.22	-29.09	-201.33	.25	-201.08
LY339	38.	46.60	112.	44.84	1574.	979567.22	980072.26	-19.31	-195.24	.32	-194.92
LY340	38.	45.42	112.	43.44	1567.	979560.29	980070.52	-26.67	-201.82	.39	-201.43
LY341	38.	46.85	112.	42.02	1504.	979574.06	980072.62	-34.43	-202.54	.21	-202.33
LY342	38.	49.61	112.	38.08	1475.	979591.73	980076.59	-29.78	-194.65	.13	-194.52
LY343	38.	47.93	112.	39.88	1509.	979577.13	980074.21	-31.41	-200.08	.25	-199.83
LY344	38.	46.67	112.	39.73	1540.	979568.63	980072.36	-28.50	-200.63	.27	-200.36
LY345	38.	45.73	112.	40.08	1571.	979560.81	980070.98	-25.36	-200.96	.29	-200.67
LY346	38.	46.48	112.	40.83	1578.	979559.73	980072.08	-25.38	-201.76	.31	-201.45
LY347	38.	45.25	112.	38.65	1583.	979557.50	980070.27	-24.27	-201.21	.38	-200.83
LY348	38.	45.82	112.	38.78	1564.	979565.80	980071.10	-22.65	-197.47	.34	-197.13
LY349	38.	45.96	112.	37.78	1579.	979566.18	980071.32	-17.87	-194.36	.37	-193.99
LY350	38.	45.61	112.	36.99	1570.	979569.26	980070.80	-17.04	-192.53	.48	-192.05
LY351	38.	46.17	112.	38.12	1568.	979568.24	980071.62	-19.51	-194.77	.34	-194.43
LY352	38.	47.38	112.	38.13	1533.	979575.57	980073.41	-24.76	-196.11	.25	-195.86
LY353	38.	48.22	112.	37.98	1510.	979583.08	980074.63	-25.57	-194.35	8.23	-186.12
LY354	38.	49.35	112.	29.32	1480.	979611.68	980076.29	-7.88	-173.31	.96	-172.35
LY355	38.	50.00	112.	28.33	1476.	979615.18	980077.26	-6.59	-171.57	.86	-170.71
LY356	38.	46.08	112.	30.52	1580.	979581.76	980071.50	-2.16	-178.76	1.75	-177.01
LY357	38.	48.23	112.	25.88	1529.	979596.80	980074.65	-6.01	-176.91	1.75	-175.16
LY358	38.	54.79	112.	29.78	1472.	979620.27	980084.28	-9.76	-174.29	1.03	-173.26
LY359	39.	2.30	112.	20.71	1507.	979633.07	980095.31	2.81	-165.63	.98	-164.65
LY360	39.	2.12	112.	20.20	1571.	979620.79	980095.05	10.55	-165.05	1.39	-163.66
LY361	39.	2.09	112.	19.78	1671.	979599.49	980095.01	20.15	-166.63	2.25	-164.38
LY362	39.	2.17	112.	19.53	1716.	979589.97	980095.12	24.40	-167.41	3.21	-164.20

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER	
LY363	39.	1.82 112.	17.18	1597.	979610.41	980094.62	8.62	-169.89	1.61	-168.28
LY364	39.	1.80 112.	16.64	1630.	979602.67	980094.59	11.08	-171.11	1.82	-169.29
LY365	39.	1.73 112.	16.04	1668.	979594.09	980094.49	14.34	-172.10	2.14	-169.96
LY366	39.	2.27 112.	15.52	1672.	979594.26	980095.27	14.97	-171.92	2.25	-169.67
LY367	39.	2.26 112.	15.14	1694.	979588.46	980095.25	15.97	-173.38	2.43	-170.95
LY368	39.	1.81 112.	17.88	1576.	979616.64	980094.61	8.38	-167.78	1.33	-166.45
LY369	39.	1.01 112.	17.34	1741.	979576.10	980093.43	19.94	-174.66	2.72	-171.94
LY370	39.	3.56 112.	17.14	1562.	979618.97	980097.18	3.81	-170.78	1.31	-169.47
LY371	39.	3.56 112.	16.64	1577.	979616.58	980097.18	6.06	-170.21	1.50	-168.71
LY372	39.	3.55 112.	16.37	1584.	979615.43	980097.16	7.08	-169.97	1.70	-168.27
LY373	39.	3.56 112.	15.80	1611.	979609.13	980097.18	9.10	-170.97	1.89	-169.08
LY374	39.	3.12 112.	15.53	1646.	979601.71	980096.52	13.13	-170.85	2.07	-168.78
LY375	39.	3.13 112.	18.87	1551.	979626.31	980096.54	8.40	-164.96	.98	-163.98
LY376	39.	3.56 112.	18.32	1537.	979628.72	980097.18	5.85	-165.95	1.00	-164.95
LY377	39.	3.56 112.	17.75	1548.	979624.32	980097.18	4.85	-168.18	1.13	-167.05
LY378	39.	3.57 112.	17.49	1554.	979622.09	980097.20	4.45	-169.25	1.37	-167.88
LY379	39.	4.05 112.	17.80	1539.	979627.05	980097.89	4.09	-167.93	1.05	-166.88
LY380	39.	1.40 112.	24.56	1426.	979646.63	980094.00	-7.31	-166.70	.44	-166.26
LY381	39.	1.40 112.	25.13	1419.	979645.97	980094.00	-10.13	-168.74	.35	-168.39
LY382	39.	1.40 112.	25.57	1417.	979643.64	980094.00	-13.08	-171.46	.30	-171.16
LY383	39.	1.41 112.	26.52	1413.	979641.81	980094.02	-16.16	-174.10	.24	-173.86
LY384	39.	1.40 112.	27.10	1412.	979641.19	980094.00	-17.07	-174.90	.20	-174.70
LY385	39.	1.40 112.	27.69	1411.	979642.55	980094.00	-16.02	-173.73	.18	-173.55
LY386	39.	.43 112.	27.10	1416.	979641.38	980092.59	-14.24	-172.51	.24	-172.27
LY387	39.	.88 112.	27.09	1414.	979641.14	980093.24	-15.75	-173.80	.22	-173.58
LY388	39.	.73 112.	26.23	1419.	979641.17	980093.02	-13.95	-172.56	.29	-172.27
LY389	39.	.43 112.	26.48	1422.	979640.85	980092.59	-12.92	-171.86	.29	-171.57
LY390	39.	.06 112.	26.15	1425.	979640.84	980092.03	-11.44	-170.72	.32	-170.40
LY391	39.	3.13 112.	22.28	1451.	979644.00	980096.54	-4.76	-166.95	.50	-166.45
LY392	39.	4.00 112.	22.28	1450.	979644.40	980097.82	-5.96	-168.03	.44	-167.59
LY393	39.	4.00 112.	22.86	1451.	979644.10	980097.82	-5.94	-168.13	.41	-167.72
LY394	39.	4.00 112.	23.41	1450.	979645.07	980097.82	-5.29	-167.36	.40	-166.96
LY395	39.	4.00 112.	23.98	1430.	979649.47	980097.82	-7.06	-166.90	.31	-166.59

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY396	39.	4.00	112.	24.55	1420.	979650.36	980097.82	-9.25	-167.97	.26	-167.71
LY397	39.	4.01	112.	25.72	1412.	979647.83	980097.84	-14.26	-172.09	.19	-171.90
LY398	39.	3.13	112.	24.55	1423.	979647.30	980096.54	-10.10	-169.16	.29	-168.87
LY399	39.	3.13	112.	25.98	1415.	979644.55	980096.54	-15.33	-173.49	.19	-173.30
L0400	39.	2.25	112.	25.69	1415.	979643.98	980095.24	-14.60	-172.76	.26	-172.50
LY401	39.	2.26	112.	24.55	1422.	979646.14	980095.25	-10.29	-169.23	.34	-168.89
LY402	39.	2.26	112.	23.42	1439.	979644.73	980095.25	-6.45	-167.29	.45	-166.84
LY403	39.	2.26	112.	22.83	1450.	979643.83	980095.25	-3.96	-166.03	.51	-165.52
LY404	39.	1.41	112.	27.96	1414.	979639.70	980094.02	-17.96	-176.01	.15	-175.86
LY405	39.	1.41	112.	28.25	1416.	979638.90	980094.02	-18.15	-176.42	.13	-176.29
LY406	39.	1.40	112.	28.53	1419.	979637.88	980094.00	-18.22	-176.83	.11	-176.72
LY407	39.	5.77	112.	24.56	1419.	979650.89	980100.43	-11.64	-170.25	.19	-170.06
LY408	39.	6.67	112.	24.53	1417.	979656.01	980101.75	-8.46	-166.84	.18	-166.66
LY409	39.	4.88	112.	24.55	1417.	979650.94	980099.12	-10.89	-169.28	.23	-169.05
LY410	39.	4.88	112.	23.40	1436.	979649.38	980099.12	-6.59	-167.10	.35	-166.75
LY411	39.	5.39	112.	22.83	1436.	979646.96	980099.87	-9.77	-170.28	.34	-169.94
LY412	39.	5.77	112.	23.40	1426.	979649.34	980100.43	-11.03	-170.42	.27	-170.15
LY413	39.	6.66	112.	23.40	1428.	979653.05	980101.74	-8.01	-167.63	.24	-167.39
LY414	39.	4.08	112.	26.37	1415.	979646.38	980097.94	-14.90	-173.06	.14	-172.92
LY415	39.	4.42	112.	26.91	1412.	979647.34	980098.45	-15.36	-173.19	.10	-173.09
LY416	39.	4.43	112.	28.05	1416.	979644.96	980098.46	-16.53	-174.80	.05	-174.75
LY417	39.	4.48	112.	28.80	1424.	979641.77	980098.53	-17.32	-176.49	.04	-176.45
LY418	39.	4.33	112.	29.75	1455.	979632.72	980098.30	-16.57	-179.20	.09	-179.11
LY419	39.	3.90	112.	30.05	1454.	979631.50	980097.67	-17.47	-179.99	.14	-179.85
LY420	39.	3.15	112.	29.65	1437.	979632.48	980096.56	-20.63	-181.25	.04	-181.21
LY421	39.	2.99	112.	29.97	1433.	979635.67	980096.33	-18.44	-178.61	.05	-178.56
LY422	39.	2.75	112.	28.67	1428.	979637.65	980095.98	-17.65	-177.27	.07	-177.20
LY423	39.	2.78	112.	27.14	1421.	979640.59	980096.02	-16.92	-175.75	.13	-175.62
LY424	39.	3.58	112.	26.54	1415.	979644.61	980097.20	-15.93	-174.09	.14	-173.95
LY425	39.	2.26	112.	26.81	1419.	979640.29	980095.25	-17.06	-175.67	.17	-175.50
LY426	39.	1.40	112.	28.80	1421.	979636.74	980094.00	-18.75	-177.58	.10	-177.48
LY427	39.	1.40	112.	29.09	1420.	979636.06	980094.00	-19.73	-178.45	.09	-178.36
LY428	39.	1.41	112.	29.28	1421.	979634.69	980094.02	-20.81	-179.64	.08	-179.56

STAT.	LATITUDE		LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY429	39.	1.40	112. 29.75	1421.	979633.75	980094.00	-21.74	-180.57	.07	-180.50
LY430	39.	1.52	112. 30.10	1410.	979635.08	980094.19	-23.99	-181.59	.08	-181.51
LY431	39.	1.57	112. 30.12	1407.	979635.17	980094.27	-24.90	-182.17	.07	-182.10
LY432	39.	1.63	112. 30.63	1408.	979634.69	980094.35	-25.17	-182.55	.06	-182.49
LY433	39.	1.68	112. 30.88	1409.	979633.91	980094.42	-25.70	-183.19	.05	-183.14
LY434	39.	1.74	112. 31.15	1412.	979632.63	980094.51	-26.14	-183.97	.04	-183.93
LY435	39.	1.80	112. 31.41	1417.	979631.46	980094.59	-25.86	-184.24	.02	-184.22
LY436	39.	1.89	112. 31.78	1424.	979629.03	980094.71	-26.24	-185.41	-.01	-185.42
LY437	39.	1.98	112. 32.04	1424.	979628.41	980094.84	-26.99	-186.16	-.02	-186.18
LY438	39.	2.08	112. 32.27	1430.	979626.89	980094.99	-26.81	-186.65	-.03	-186.68
LY439	39.	2.26	112. 32.58	1431.	979626.36	980095.25	-27.29	-187.24	-.05	-187.29
LY440	39.	2.24	112. 32.84	1428.	979626.02	980095.23	-28.54	-188.15	-.05	-188.20
LY441	39.	2.03	112. 32.82	1425.	979626.27	980094.92	-28.90	-188.18	-.05	-188.23
LY442	39.	1.86	112. 33.12	1420.	979626.45	980094.67	-30.02	-188.74	-.05	-188.79
LY443	39.	1.70	112. 33.31	1419.	979626.07	980094.45	-30.48	-189.09	-.06	-189.15
LY444	39.	1.53	112. 33.47	1418.	979625.74	980094.20	-30.87	-189.37	-.06	-189.43
LY445	39.	1.33	112. 33.64	1418.	979625.23	980093.90	-31.08	-189.58	-.06	-189.64
LY446	39.	1.24	112. 34.06	1419.	979624.24	980093.77	-31.63	-190.24	-.06	-190.30
LY447	39.	1.14	112. 34.80	1423.	979622.68	980093.62	-31.80	-190.85	-.08	-190.94
LY448	39.	1.04	112. 35.01	1423.	979621.97	980093.48	-32.37	-191.43	-.10	-191.53
LY449	39.	1.16	112. 35.51	1420.	979621.76	980093.65	-33.68	-192.40	-.11	-192.51
LY450	39.	1.17	112. 35.83	1419.	979621.50	980093.66	-34.27	-192.88	-.12	-193.00
LY451	39.	.90	112. 36.11	1420.	979620.59	980093.27	-34.48	-193.20	-.12	-193.32
LY452	39.	.61	112. 36.45	1418.	979620.14	980092.85	-35.12	-193.62	-.11	-193.73
LY453	39.	.41	112. 36.86	1415.	979620.31	980092.54	-35.57	-193.73	-.13	-193.86
LY454	39.	2.03	112. 27.68	1415.	979639.94	980094.92	-18.32	-176.48	.14	-176.34
LY455	39.	1.40	112. 24.00	1437.	979645.23	980094.00	-5.32	-165.94	.52	-165.42
LY456	39.	1.39	112. 22.87	1555.	979620.88	980093.98	6.76	-167.05	1.25	-165.80
LY457	39.	.70	112. 23.15	1540.	979623.17	980092.98	5.43	-166.70	.90	-165.80
LY458	38.	59.63	112. 24.16	1466.	979633.20	980091.41	-5.81	-169.67	.55	-169.12
LY459	39.	7.82	112. 24.50	1421.	979660.00	980103.45	-4.93	-163.76	.16	-163.60
LY460	39.	9.41	112. 24.53	1428.	979661.97	980105.79	-3.15	-162.76	.15	-162.61
LY461	39.	9.28	112. 25.44	1415.	979663.33	980105.60	-5.61	-163.77	.10	-163.67

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER	
LY462	39.	8.86 112.	25.60	1412.	979663.17	980104.98	-6.07	-163.90	.10	-163.80
LY463	39.	8.54 112.	27.14	1405.	979657.50	980104.51	-13.43	-170.47	.02	-170.45
LY464	39.	9.32 112.	26.48	1408.	979662.06	980105.66	-9.09	-166.47	.05	-166.42
LY465	39.	9.35 112.	27.92	1405.	979658.11	980105.70	-14.02	-171.06	-.01	-171.07
LY466	39.	8.27 112.	28.36	1407.	979655.09	980104.12	-14.83	-172.10	-.02	-172.12
LY467	39.	7.62 112.	28.63	1405.	979655.20	980103.16	-14.38	-171.42	-.02	-171.44
LY468	39.	6.99 112.	28.31	1405.	979655.27	980102.22	-13.38	-170.42	.00	-170.42
LY469	39.	6.69 112.	25.77	1406.	979658.77	980101.78	-9.12	-166.28	.06	-166.22
LY470	39.	5.75 112.	27.93	1407.	979651.38	980100.40	-14.82	-172.09	.03	-172.06
LY471	39.	6.65 112.	21.14	1455.	979647.44	980101.73	-5.28	-167.91	.43	-167.48
LY472	39.	5.50 112.	28.42	1409.	979649.05	980100.03	-16.16	-173.65	.02	-173.63
LY473	39.	5.36 112.	26.94	1406.	979651.77	980099.83	-14.17	-171.33	.08	-171.25
LY474	39.	4.76 112.	26.22	1409.	979649.35	980098.94	-14.78	-172.27	.14	-172.13
LY475	39.	3.51 112.	30.72	1494.	979622.18	980097.10	-13.88	-180.87	.18	-180.69
LY476	39.	3.15 112.	30.17	1449.	979629.70	980096.56	-19.71	-181.67	.04	-181.63
LY477	39.	2.77 112.	29.78	1439.	979632.17	980096.01	-19.77	-180.61	.02	-180.59
LY478	39.	2.52 112.	29.59	1433.	979633.37	980095.65	-20.06	-180.23	.04	-180.19
LY479	39.	5.59 112.	31.72	1461.	979632.54	980100.16	-16.77	-180.07	-.05	-180.12
LY480	39.	5.88 112.	30.55	1438.	979639.71	980100.59	-17.12	-177.85	-.04	-177.89
LY481	39.	6.12 112.	29.22	1416.	979647.90	980100.94	-16.07	-174.34	-.01	-174.35
LY482	39.	7.97 112.	29.29	1406.	979654.52	980103.66	-15.25	-172.41	-.04	-172.45
LY483	39.	7.56 112.	30.83	1443.	979642.60	980103.06	-15.16	-176.45	-.06	-176.51
LY484	39.	7.23 112.	31.92	1451.	979639.16	980102.57	-15.63	-177.82	.00	-177.82
LY485	39.	7.16 112.	34.44	1445.	979632.48	980102.47	-24.07	-185.58	-.07	-185.65
LY486	39.	7.01 112.	34.88	1437.	979631.97	980102.25	-26.83	-187.45	-.10	-187.55
LY487	38.	52.28 112.	27.90	1455.	979622.63	980080.59	-8.96	-171.59	.69	-170.90
LY488	38.	52.20 112.	28.47	1455.	979622.22	980080.48	-9.25	-171.88	.61	-171.27
LY489	38.	52.11 112.	29.58	1457.	979620.34	980080.34	-10.38	-173.24	.50	-172.74
LY490	38.	51.81 112.	30.39	1453.	979620.05	980079.89	-11.45	-173.86	.43	-173.43
LY491	38.	52.73 112.	27.52	1447.	979624.86	980081.25	-9.85	-171.59	.72	-170.87
LY492	38.	52.82 112.	28.37	1445.	979624.47	980081.37	-10.99	-172.50	.58	-171.92
LY493	38.	52.89 112.	28.93	1444.	979624.25	980081.48	-11.63	-173.03	.50	-172.53
LY494	38.	52.96 112.	29.44	1443.	979624.18	980081.59	-12.10	-173.39	.44	-172.95

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY528	39.	7.38	112.	31.41	1447.	979641.24	980102.80	-15.02	-176.76	-.04	-176.80
LY529	39.	7.46	112.	31.15	1447.	979641.68	980102.92	-14.70	-176.44	-.05	-176.49
LY530	39.	7.59	112.	36.58	1446.	979634.89	980103.11	-21.99	-183.62	.54	-183.08
LY531	39.	8.27	112.	33.52	1445.	979638.42	980104.12	-19.78	-181.29	.43	-180.96
LY532	39.	8.69	112.	32.62	1438.	979642.26	980104.73	-18.71	-179.44	-.01	-179.45
LY533	39.	9.05	112.	30.67	1414.	979649.96	980105.25	-18.94	-176.99	-.04	-177.03
LY534	39.	8.23	112.	31.94	1440.	979642.37	980104.05	-17.30	-178.26	.02	-178.24
LY535	39.	9.65	112.	31.17	1412.	979654.42	980106.14	-15.98	-173.81	-.09	-173.90
LY536	39.	10.11	112.	30.43	1412.	979658.90	980106.83	-12.19	-170.02	-.09	-170.11
LY537	39.	10.29	112.	28.96	1406.	979663.76	980107.09	-9.44	-166.60	-.04	-166.64
LY538	39.	10.30	112.	26.08	1413.	979666.33	980107.10	-4.72	-162.66	1.86	-160.80
LY539	39.	9.29	112.	23.14	1444.	979658.19	980105.62	-1.82	-163.22	.22	-163.00
LY540	39.	8.55	112.	22.73	1445.	979654.60	980104.52	-4.00	-165.52	.39	-165.13
LY541	39.	7.96	112.	21.63	1453.	979650.71	980103.65	-4.55	-166.96	.33	-166.63
LY542	39.	12.25	112.	29.95	1398.	979670.09	980109.98	-8.47	-164.73	-.08	-164.81
LY543	39.	13.00	112.	30.46	1394.	979672.21	980111.06	-8.67	-164.48	-.10	-164.58
LY544	39.	13.67	112.	31.18	1393.	979672.07	980112.05	-10.11	-165.81	-.12	-165.93
LY545	39.	14.28	112.	31.99	1393.	979672.37	980112.95	-10.70	-166.40	-.13	-166.53
LY546	39.	12.87	112.	28.49	1402.	979675.65	980110.87	-2.57	-159.28	-.03	-159.31
LY547	39.	12.83	112.	24.94	1439.	979671.95	980110.82	5.19	-155.65	.14	-155.51
LY548	39.	13.70	112.	24.25	1450.	979672.81	980112.10	8.17	-153.90	.25	-153.65
LY549	39.	12.82	112.	23.99	1450.	979670.11	980110.90	6.77	-155.30	.22	-155.08
LY550	39.	12.83	112.	22.86	1474.	979664.72	980110.82	8.77	-155.99	.33	-155.66
LY551	39.	12.81	112.	19.57	1572.	979641.41	980110.79	15.73	-159.98	.75	-159.23
LY552	39.	14.22	112.	20.40	1580.	979645.95	980112.86	20.67	-155.93	.84	-155.09
LY553	39.	14.58	112.	22.28	1520.	979661.69	980113.40	17.36	-152.54	.54	-152.00
LY554	39.	14.59	112.	22.84	1503.	979665.71	980113.41	16.12	-151.88	.46	-151.42
LY555	39.	10.39	112.	25.49	1423.	979666.09	980107.23	-2.01	-161.07	.10	-160.97
LY556	39.	7.52	112.	20.03	1469.	979646.60	980103.01	-3.08	-167.28	.50	-166.78
LY557	39.	8.41	112.	20.03	1476.	979647.23	980104.32	-1.60	-166.58	.50	-166.08
LY558	39.	9.28	112.	20.03	1476.	979647.23	980105.60	-2.98	-167.96	.48	-167.38
LY559	39.	9.28	112.	18.91	1497.	979642.74	980105.60	-.89	-168.22	.62	-167.60
LY560	39.	9.28	112.	18.35	1512.	979639.62	980105.60	.61	-168.39	.67	-167.72

STAT.	LATITUDE		LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER	
LY495	38.	53.61	112.	29.80	1433.	979627.18	980082.55	-13.15	-173.32	.48	-172.84
LY496	38.	54.21	112.	29.38	1430.	979628.61	980083.44	-13.53	-173.37	.38	-172.99
LY497	38.	53.76	112.	29.70	1431.	979627.28	980082.77	-13.88	-173.83	.38	-173.45
LY498	38.	53.33	112.	29.69	1435.	979625.39	980082.13	-13.90	-174.30	.40	-173.90
LY499	38.	54.63	112.	30.13	1428.	979629.90	980084.05	-13.48	-173.09	.32	-172.77
LY500	38.	55.78	112.	29.65	1425.	979630.03	980085.73	-15.95	-175.23	.29	-174.94
LY501	38.	55.59	112.	30.38	1430.	979629.46	980085.46	-14.71	-174.55	.30	-174.25
LY502	38.	55.90	112.	30.80	1431.	979628.69	980085.91	-15.62	-175.57	.22	-175.35
LY503	38.	58.17	112.	30.44	1439.	979629.46	980089.25	-15.72	-176.56	.19	-176.37
LY504	38.	57.23	112.	27.91	1420.	979634.62	980087.87	-15.04	-173.76	.34	-173.42
LY505	38.	56.83	112.	27.91	1422.	979633.42	980087.28	-15.04	-173.98	.36	-173.62
LY506	38.	56.52	112.	37.49	1432.	979612.23	980086.83	-32.69	-192.75	-.07	-192.82
LY507	38.	56.50	112.	38.06	1430.	979611.80	980086.80	-33.70	-193.54	-.07	-193.61
LY508	38.	56.49	112.	39.18	1427.	979611.83	980086.79	-34.60	-194.10	-.08	-194.18
LY509	38.	56.71	112.	40.06	1426.	979612.78	980087.11	-34.27	-193.66	-.11	-193.77
LY510	39.	1.33	112.	31.13	1409.	979633.00	980093.90	-26.09	-183.58	.05	-183.53
LY511	39.	.83	112.	31.75	1409.	979631.40	980093.17	-26.96	-184.45	.03	-184.42
LY512	39.	.10	112.	31.33	1412.	979632.80	980092.09	-23.55	-181.38	.07	-181.31
LY513	38.	59.25	112.	30.61	1425.	979632.56	980090.84	-18.53	-177.81	.08	-177.73
LY514	39.	.45	112.	33.51	1418.	979625.51	980092.62	-29.52	-188.02	-.04	-188.06
LY515	39.	1.59	112.	32.49	1423.	979626.91	980094.29	-28.24	-187.30	-.03	-187.33
LY516	39.	3.03	112.	34.49	1429.	979623.67	980096.39	-31.73	-191.46	-.10	-191.56
LY517	39.	5.81	112.	34.35	1430.	979632.99	980100.48	-26.20	-186.04	-.11	-186.15
LY518	39.	6.40	112.	34.22	1439.	979632.90	980101.36	-24.39	-185.23	-.10	-185.33
LY519	39.	6.46	112.	33.96	1442.	979633.40	980101.45	-23.05	-184.23	-.08	-184.31
LY520	39.	6.54	112.	33.69	1443.	979634.06	980101.56	-22.20	-183.49	-.05	-183.54
LY521	39.	6.56	112.	33.43	1444.	979634.54	980101.59	-21.44	-182.84	-.03	-182.87
LY522	39.	6.59	112.	33.16	1453.	979633.12	980101.63	-20.12	-182.53	-.02	-182.55
LY523	39.	6.71	112.	32.91	1458.	979633.20	980101.81	-18.68	-181.65	.02	-181.63
LY524	39.	6.83	112.	32.65	1465.	979632.59	980101.98	-17.30	-181.05	.04	-181.01
LY525	39.	6.97	112.	32.40	1461.	979634.74	980102.19	-16.59	-179.89	.08	-179.81
LY526	39.	7.09	112.	32.22	1455.	979637.22	980102.37	-16.14	-178.77	.06	-178.71
LY527	39.	7.34	112.	31.67	1449.	979640.43	980102.74	-15.16	-177.12	-.02	-177.14

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY561	39.	9.28	112.	15.67	1557.	979630.55	980105.60	5.43	-168.60	.89	-167.71
LY562	39.	9.28	112.	15.73	1599.	979622.95	980105.60	10.80	-167.93	1.11	-166.82
LY563	39.	10.12	112.	15.83	1614.	979621.38	980106.84	12.62	-167.79	1.09	-166.70
LY564	39.	11.08	112.	15.82	1656.	979615.07	980108.25	17.86	-167.24	1.28	-165.96
LY565	39.	8.85	112.	16.68	1546.	979630.78	980104.96	2.90	-169.90	.88	-169.02
LY566	39.	8.40	112.	16.38	1548.	979628.97	980104.30	2.37	-170.66	.93	-169.73
LY567	39.	7.51	112.	15.35	1546.	979627.54	980102.99	1.63	-171.17	1.02	-170.15
LY568	39.	7.51	112.	15.53	1571.	979621.24	980102.99	3.05	-172.55	1.16	-171.39
LY569	39.	8.18	112.	15.52	1570.	979622.80	980103.98	3.31	-172.18	1.10	-171.08
LY570	39.	7.73	112.	17.21	1527.	979632.67	980103.31	.58	-170.10	.81	-169.29
LY571	39.	14.65	112.	27.23	1420.	979679.54	980113.50	4.25	-154.47	.03	-154.44
LY572	39.	13.93	112.	27.88	1415.	979678.83	980112.44	3.10	-155.06	-.01	-155.07
LY573	39.	11.94	112.	22.97	1462.	979662.32	980109.52	3.97	-159.45	.28	-159.17
LY574	39.	11.93	112.	22.30	1473.	979660.08	980109.51	5.13	-159.51	.34	-159.17
LY575	39.	11.93	112.	21.17	1497.	979654.79	980109.51	7.25	-160.08	.45	-159.63
LY576	39.	11.94	112.	18.80	1566.	979639.25	980109.52	12.99	-162.05	.95	-161.10
LY577	39.	12.83	112.	16.90	1658.	979622.16	980110.82	22.99	-162.33	1.24	-161.09
LY578	39.	12.70	112.	15.23	1693.	979613.51	980110.64	25.33	-163.91	1.19	-162.72
LY579	39.	12.53	112.	15.18	1730.	979602.58	980110.38	26.07	-167.30	1.18	-166.12
LY580	39.	13.45	112.	15.10	1721.	979606.30	980111.72	25.67	-166.69	1.55	-165.14
LY581	39.	13.88	112.	15.88	1767.	979597.08	980112.36	30.01	-167.50	1.90	-165.60
LY582	39.	14.21	112.	15.30	1820.	979586.37	980112.84	35.17	-168.26	2.35	-165.91
LY583	39.	11.06	112.	18.17	1568.	979634.75	980108.23	10.40	-164.86	.98	-163.88
LY584	39.	10.16	112.	17.55	1559.	979633.04	980106.90	7.25	-167.01	.84	-166.17
LY585	39.	10.33	112.	22.18	1462.	979654.89	980107.15	-1.09	-164.51	.30	-164.21
LY586	39.	10.64	112.	24.00	1447.	979662.15	980107.59	1.10	-160.64	.16	-160.48
LY587	39.	6.25	112.	36.62	1401.	979632.73	980101.12	-36.05	-192.65	-.17	-192.82
LY588	39.	6.40	112.	37.13	1400.	979632.09	980101.36	-37.24	-193.72	-.18	-193.90
LY589	39.	6.24	112.	38.18	1400.	979630.87	980101.11	-38.20	-194.69	-.20	-194.89
LY590	39.	6.47	112.	39.31	1397.	979631.67	980101.46	-38.68	-194.83	-.21	-195.04
LY591	39.	5.87	112.	39.74	1398.	979631.42	980100.57	-37.73	-193.99	-.20	-194.19
LY592	39.	5.62	112.	39.58	1399.	979631.84	980100.21	-36.65	-193.02	-.20	-193.22
LY593	39.	5.56	112.	39.97	1398.	979632.47	980100.12	-36.23	-192.49	-.21	-192.70

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER	
LY594	39.	5.80	112. 41.00	1395.	979635.25	980100.47	-34.71	-190.64	-.22	-190.86
LY595	39.	6.14	112. 42.03	1399.	979638.12	980100.97	-31.13	-187.50	-.23	-187.73
LY596	39.	6.63	112. 43.03	1398.	979640.90	980101.70	-29.38	-185.64	-.23	-185.87
LY597	39.	7.19	112. 44.25	1396.	979644.63	980102.51	-27.08	-193.12	-.24	-193.36
LY598	39.	6.37	112. 43.62	1399.	979642.36	980101.31	-27.23	-183.60	-.24	-183.84
LY599	39.	5.85	112. 42.53	1400.	979639.26	980100.55	-29.26	-185.74	-.23	-185.97
LY600	39.	5.46	112. 41.18	1400.	979637.83	980099.98	-30.12	-186.60	-.22	-186.82
LY601	39.	4.90	112. 41.61	1401.	979637.05	980099.14	-29.74	-186.34	-.21	-186.55
LY602	39.	4.00	112. 41.00	1403.	979633.88	980097.82	-30.98	-187.80	-.21	-188.01
LY603	39.	4.83	112. 41.12	1399.	979635.55	980099.04	-31.77	-198.14	-.21	-188.35
LY604	39.	4.58	112. 40.48	1398.	979633.37	980098.68	-33.89	-190.15	-.21	-190.36
LY605	39.	7.88	112. 36.58	1397.	979636.87	980103.53	-35.55	-191.70	-.17	-191.87
LY606	39.	8.25	112. 37.07	1396.	979636.45	980104.09	-36.83	-192.87	-.19	-193.06
LY607	39.	5.86	112. 37.10	1400.	979631.89	980100.55	-36.64	-193.12	-.18	-193.30
LY608	39.	8.46	112. 36.92	1395.	979637.99	980104.39	-35.91	-191.84	-.19	-192.03
LY609	39.	9.34	112. 36.93	1394.	979641.32	980105.69	-34.19	-190.00	-.19	-190.19
LY610	39.	10.11	112. 37.03	1393.	979644.30	980106.83	-32.66	-188.36	-.21	-188.57
LY611	39.	11.09	112. 38.06	1392.	979646.29	980108.27	-32.41	-188.00	-.22	-188.22
LY612	39.	4.07	112. 41.90	1402.	979636.39	980097.92	-28.88	-185.59	-.21	-185.80
LY613	39.	3.98	112. 42.67	1403.	979637.44	980097.79	-27.39	-184.21	-.21	-184.42
LY614	39.	3.88	112. 43.50	1401.	979639.74	980097.64	-25.55	-182.15	-.21	-182.36
LY615	39.	3.78	112. 44.40	1401.	979642.14	980097.50	-23.01	-179.61	-.21	-179.82
LY616	39.	5.53	112. 44.99	1399.	979646.16	980100.08	-22.20	-178.57	-.23	-178.80
LY617	39.	6.39	112. 44.66	1398.	979645.27	980101.34	-24.66	-180.92	-.24	-181.16
LY618	39.	3.29	112. 41.63	1408.	979633.71	980096.77	-28.55	-185.93	-.20	-186.13
LY619	39.	2.59	112. 42.24	1410.	979633.62	980095.75	-27.01	-184.61	-.20	-184.81
LY620	39.	1.88	112. 42.85	1411.	979632.90	980094.70	-26.38	-184.09	-.20	-184.29
LY621	39.	1.45	112. 44.82	1415.	979636.43	980094.09	-20.99	-179.15	-.19	-179.34
LY622	39.	1.46	112. 43.70	1411.	979634.15	980094.10	-24.53	-182.24	-.19	-182.43
LY623	39.	.42	112. 44.14	1415.	979632.13	980092.55	-23.76	-181.92	-.18	-182.10
LY624	39.	.58	112. 43.13	1415.	979629.84	980092.80	-26.30	-184.46	-.18	-184.64
LY625	39.	1.45	112. 42.57	1412.	979631.07	980094.09	-27.27	-185.10	-.19	-185.29
LY626	39.	1.44	112. 41.46	1411.	979628.42	980094.07	-30.23	-187.94	-.18	-188.12

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
LY627	39.	1.43	112.	40.32	1412.	979625.49	980094.05	-32.82	-190.65	-.18	-190.83
LY628	39.	2.03	112.	40.89	1411.	979628.60	980094.92	-30.90	-188.61	-.19	-188.80
LY629	39.	2.67	112.	40.12	1407.	979628.26	980095.87	-33.41	-190.68	-.19	-190.87
LY630	39.	3.33	112.	39.32	1405.	979627.49	980096.83	-35.76	-192.80	-.19	-192.99
LY631	39.	3.10	112.	38.65	1406.	979625.80	980096.49	-36.80	-193.96	-.18	-194.14
LY632	39.	2.22	112.	38.43	1407.	979623.29	980095.20	-37.72	-194.99	-.16	-195.15
LY633	39.	3.60	112.	39.85	1402.	979629.73	980097.23	-34.85	-191.56	-.19	-191.75
LY634	39.	3.66	112.	39.02	1403.	979628.29	980097.32	-36.08	-192.90	-.19	-193.09
LY635	39.	4.15	112.	38.18	1405.	979628.84	980098.04	-35.63	-192.67	-.18	-192.85
LY636	39.	4.93	112.	38.04	1400.	979630.87	980099.19	-36.28	-192.77	-.19	-192.96
LY637	39.	4.70	112.	36.66	1401.	979631.42	980098.85	-35.09	-191.69	-.16	-191.85
LY638	39.	8.25	112.	37.74	1396.	979635.42	980104.09	-37.86	-193.90	-.20	-194.10
LY639	39.	8.99	112.	37.76	1395.	979637.99	980105.16	-36.68	-192.61	-.21	-192.82
LY640	39.	8.90	112.	38.60	1394.	979636.64	980105.03	-38.21	-194.02	-.22	-194.24
LY641	39.	10.61	112.	38.73	1394.	979643.17	980107.55	-34.21	-190.02	-.22	-190.24
LY642	39.	11.38	112.	39.12	1392.	979645.60	980108.69	-33.52	-189.11	-.22	-189.33
LY643	39.	11.96	112.	38.61	1393.	979648.32	980109.55	-31.36	-187.06	-.23	-187.29
LY644	39.	13.48	112.	38.58	1394.	979653.70	980111.77	-27.89	-183.70	-.23	-183.93
LY645	39.	13.50	112.	39.20	1395.	979652.36	980111.90	-29.94	-184.87	-.24	-185.11
LY646	39.	13.02	112.	39.40	1394.	979650.65	980111.09	-30.27	-186.08	-.23	-186.31
LY647	39.	12.85	112.	39.86	1394.	979650.01	980110.84	-30.66	-186.47	-.23	-186.70
LY648	39.	13.47	112.	40.09	1393.	979652.24	980111.75	-29.64	-185.34	-.24	-185.58
LY649	39.	13.08	112.	40.58	1392.	979650.96	980111.18	-30.66	-186.25	-.24	-186.49
LY650	39.	8.37	112.	43.49	1394.	979644.46	980104.26	-29.62	-185.43	-.25	-185.68
LY651	39.	8.88	112.	43.21	1406.	979642.29	980105.00	-28.82	-185.98	-.19	-186.17
LY652	39.	9.92	112.	42.52	1391.	979646.34	980106.53	-30.93	-186.41	-.25	-186.66
LY653	39.	11.51	112.	41.54	1393.	979645.99	980108.88	-33.02	-188.72	-.24	-188.96
LY654	39.	14.68	112.	39.56	1395.	979655.51	980113.55	-27.54	-183.47	-.25	-183.72
LY655	39.	14.60	112.	38.02	1394.	979659.13	980113.43	-25.12	-180.93	-.23	-181.16
LY656	39.	14.70	112.	39.16	1397.	979655.67	980113.57	-26.79	-182.94	-.24	-183.18
LY657	39.	14.60	112.	40.28	1395.	979654.89	980113.43	-28.04	-183.97	-.25	-184.22
LY658	39.	14.60	112.	41.40	1394.	979655.35	980113.43	-27.90	-183.71	-.25	-183.96
LY659	39.	14.60	112.	42.53	1392.	979657.24	980113.43	-26.63	-182.22	-.25	-182.47

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE POUGUER	T.C.	COMPLETE BOUGUER
LY660	39. 14.59	112. 43.65	1391.	979659.13	980113.41	-26.03	-181.51	-.25	-181.76
LY661	39. 14.60	112. 44.67	1393.	979659.44	980113.43	-24.12	-179.82	.07	-179.75
LY662	39. 13.82	112. 43.33	1392.	979656.11	980112.27	-26.60	-182.19	-.11	-182.30
LY663	39. 13.35	112. 42.47	1393.	979654.48	980111.58	-27.23	-182.93	-.23	-183.16
LY664	39. 12.32	112. 42.67	1404.	979649.89	980110.08	-26.92	-183.85	.48	-183.37
LY665	39. 11.24	112. 42.76	1412.	979646.02	980108.48	-26.72	-184.55	-.23	-184.78
LY666	39. 11.64	112. 42.03	1430.	979645.12	980109.07	-22.66	-182.50	-.21	-182.71
LY667	39. 12.31	112. 44.58	1451.	979643.01	980110.06	-19.29	-181.47	.83	-180.64
LY668	39. 10.56	112. 44.08	1400.	979648.90	980107.48	-26.56	-183.04	-.10	-183.14
LY669	39. 10.27	112. 43.28	1394.	979648.60	980107.05	-28.28	-184.09	-.24	-184.33
LY670	39. 9.50	112. 43.41	1394.	979647.20	980105.92	-28.54	-184.35	-.25	-184.60
LY671	39. 10.88	112. 42.08	1407.	979643.62	980107.95	-30.13	-187.40	-.11	-187.51
LY672	39. 13.73	112. 41.41	1392.	979653.94	980112.15	-28.64	-184.23	-.25	-184.48
LY673	39. 7.59	112. 45.90	1394.	979650.98	980103.11	-21.95	-177.76	-.23	-177.99
LY674	39. 7.60	112. 47.01	1394.	979655.90	980103.12	-17.05	-172.86	-.24	-173.10
LY675	38. 45.25	112. 21.91	1684.	979544.37	980070.27	-6.23	-194.46	8.10	-186.36
LY676	38. 50.46	112. 22.19	1700.	979565.20	980077.92	11.89	-178.13	4.63	-173.50
LY677	38. 50.35	112. 21.53	1789.	979544.99	980077.77	19.31	-180.66	7.43	-173.23
LY678	38. 50.25	112. 20.49	1928.	979511.47	980077.62	28.82	-186.68	11.45	-175.24
LY679	38. 50.24	112. 19.98	2008.	979491.94	980077.60	33.99	-190.45	13.03	-177.42
LY700	38. 58.92	112. 47.64	1438.	979633.02	980090.36	-13.58	-174.31	-.14	-174.45
LY701	38. 57.90	112. 45.43	1422.	979623.83	980088.95	-21.15	-180.09	-.14	-180.23
LY702	38. 57.31	112. 44.68	1423.	979625.09	980087.98	-23.76	-182.82	-.14	-182.96
LY703	38. 56.88	112. 43.83	1424.	979621.68	980087.35	-26.23	-185.40	-.12	-185.52
LY704	38. 56.68	112. 42.66	1424.	979618.36	980087.06	-29.26	-188.43	-.10	-188.53
WI001	38. 58.28	112. 21.12	1521.	979617.84	980089.41	-2.19	-172.20	1.15	-171.05
WI016	38. 58.75	112. 23.21	1469.	979632.44	980090.11	-4.34	-168.54	.73	-167.81
WI020	38. 59.63	112. 23.72	1465.	979635.31	980091.41	-4.00	-167.75	.57	-167.18
WI021	38. 59.85	112. 22.30	1483.	979632.40	980091.73	-1.68	-167.44	.73	-166.71
WI022	38. 59.82	112. 21.17	1502.	979627.84	980091.68	-.32	-168.21	.92	-167.29
WI023	38. 49.11	112. 26.01	1504.	979603.55	980075.95	-8.27	-176.38	1.57	-174.81
WI026	38. 46.48	112. 24.68	1646.	979565.09	980072.08	.96	-183.02	2.90	-180.13
WI031	38. 49.55	112. 28.32	1477.	979613.68	980076.60	-7.13	-172.22	.94	-171.28

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
WI037	38.	47.31	112.	23.59	1663.	979563.69	980073.30	3.58	-182.30	3.60	-178.70
WI038	38.	45.26	112.	22.05	1699.	979544.24	980070.29	-1.74	-191.65	7.20	-184.45
WI039	38.	47.35	112.	25.21	1539.	979590.01	980073.36	-8.42	-180.44	1.96	-178.48
WI040	38.	46.27	112.	27.02	1588.	979577.45	980071.77	-4.26	-181.76	2.34	-179.42
WI041	38.	46.90	112.	28.58	1540.	979590.30	980072.70	-7.16	-179.29	1.50	-177.79
WI042	38.	46.70	112.	29.99	1530.	979592.73	980072.40	-7.51	-178.53	1.40	-177.13
WI043	38.	51.76	112.	25.93	1456.	979620.63	980079.82	-9.88	-172.62	.94	-171.68
WI045	38.	52.13	112.	29.01	1457.	979620.04	980080.37	-10.71	-173.57	.59	-172.98
WI047	38.	54.21	112.	29.17	1429.	979628.70	980083.44	-13.75	-173.48	.40	-173.08
WI049	38.	56.34	112.	29.91	1423.	979630.95	980086.57	-16.48	-175.54	.31	-175.23
WI051	38.	49.56	112.	32.12	1435.	979616.77	980076.61	-17.00	-177.40	.53	-176.87
WI055	38.	46.56	112.	32.52	1482.	979601.25	980072.20	-13.61	-179.26	1.11	-178.15
WI056	38.	46.08	112.	32.53	1508.	979594.75	980071.50	-11.38	-179.94	1.35	-178.59
WI059	38.	48.91	112.	34.65	1455.	979608.08	980075.65	-18.56	-181.19	.40	-180.79
WI065	38.	45.18	112.	37.60	1606.	979559.16	980070.17	-15.41	-194.92	.50	-194.42
WI067	38.	45.44	112.	44.57	1562.	979559.74	980070.55	-28.78	-203.37	.37	-203.00
WI069	38.	48.10	112.	40.30	1496.	979580.11	980074.45	-32.68	-199.90	.27	-199.63
WI076	38.	50.91	112.	37.00	1508.	979591.73	980078.59	-21.50	-190.06	.21	-189.85
WI079	38.	56.13	112.	31.11	1429.	979628.35	980086.25	-16.90	-176.63	.27	-176.36
WI083	38.	58.82	112.	31.38	1429.	979629.85	980090.21	-19.37	-179.10	.06	-179.04
WI086	38.	59.51	112.	34.55	1423.	979621.24	980091.23	-30.86	-189.92	-.06	-189.98
WI089	38.	55.87	112.	37.27	1443.	979609.67	980085.87	-30.39	-192.18	-.05	-192.23
WI094	38.	52.67	112.	33.07	1433.	979622.23	980081.16	-16.71	-176.88	.24	-176.64
WI099	38.	51.80	112.	41.45	1455.	979595.37	980079.87	-35.50	-198.13	-.04	-198.17
WI102	38.	53.81	112.	37.76	1465.	979602.82	980082.84	-27.92	-191.67	.09	-191.58
WI103	38.	54.34	112.	38.10	1458.	979603.36	980083.62	-30.33	-193.30	-.01	-193.31
WI104	38.	51.12	112.	34.75	1465.	979606.85	980078.90	-19.96	-183.71	.18	-183.53
WI105	38.	51.99	112.	34.40	1460.	979609.91	980080.17	-19.71	-182.90	.15	-182.75
WI108	38.	48.23	112.	24.66	1547.	979590.77	980074.65	-6.48	-179.40	2.47	-176.93
WI112	38.	52.60	112.	23.82	1493.	979613.43	980081.05	-6.89	-173.77	2.00	-171.77
WI113	38.	51.71	112.	22.99	1554.	979598.27	980079.75	-1.92	-175.62	3.01	-172.61
WI116	38.	53.70	112.	22.64	1549.	979604.94	980082.68	.28	-172.86	2.23	-170.63
WI117	38.	53.59	112.	26.05	1447.	979624.41	980082.52	-11.57	-173.31	.95	-172.36

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
WI118	38.	54.40	112.	26.04	1442.	979627.30	980083.71	-11.42	-172.60	.86	-171.74
WI121	38.	55.26	112.	25.19	1445.	979628.92	980084.98	-10.13	-171.65	.93	-170.72
WI123	38.	56.19	112.	25.48	1440.	979632.01	980086.34	-9.94	-170.90	.72	-170.18
WI127	38.	56.12	112.	22.38	1492.	979617.97	980086.23	-7.84	-174.61	1.48	-173.13
WI129	38.	57.33	112.	22.04	1499.	979621.18	980088.02	-4.26	-171.81	1.17	-170.64
WI132	38.	57.88	112.	26.80	1424.	979636.98	980088.83	-12.41	-171.58	.40	-171.18
WI133	38.	57.88	112.	27.93	1419.	979635.69	980088.83	-15.24	-173.85	.32	-173.53
WI135	38.	56.11	112.	21.26	1526.	979610.47	980086.22	-4.83	-175.40	1.88	-173.52
WI139	38.	55.27	112.	17.21	1825.	979548.19	980084.99	26.39	-177.60	5.69	-171.91
WI140	38.	55.22	112.	16.70	1964.	979518.96	980084.92	40.12	-179.41	4.98	-174.43
WI141	38.	57.74	112.	18.36	1596.	979599.93	980088.62	3.82	-174.57	2.29	-172.28
WI157	38.	48.22	112.	16.69	2902.	979289.11	980074.63	110.02	-214.35	15.32	-199.03
WI165	38.	57.60	112.	19.39	1572.	979603.52	980088.42	.21	-175.50	1.83	-173.67
WI166	38.	59.63	112.	19.18	1548.	979614.64	980091.41	.94	-172.09	1.42	-170.67
WI167	38.	59.63	112.	17.79	1618.	979598.39	980091.41	6.29	-174.56	1.90	-172.66
WI168	38.	59.84	112.	16.67	1726.	979538.95	980091.71	-20.13	-213.05	3.02	-210.03
WI170	38.	58.63	112.	17.44	1661.	979588.57	980089.94	11.21	-174.45	2.26	-172.19
WI172	39.	.29	112.	18.69	1568.	979612.24	980092.37	3.75	-171.51	1.39	-170.12
WI173	39.	2.24	112.	17.76	1571.	979616.13	980095.23	5.71	-169.89	1.31	-168.58
WI175	39.	4.16	112.	16.86	1553.	979621.65	980098.05	2.85	-170.74	1.33	-169.41
WI176	39.	4.87	112.	16.66	1558.	979622.31	980099.10	4.00	-170.14	1.49	-168.65
WI178	39.	6.86	112.	17.48	1514.	979634.35	980102.03	-.46	-169.69	.84	-168.85
WI179	39.	7.10	112.	18.90	1488.	979642.29	980102.38	-.90	-167.22	.65	-166.58
WI180	39.	7.10	112.	19.47	1477.	979644.32	980102.38	-2.27	-167.36	.59	-166.77
WI181	39.	6.98	112.	21.14	1454.	979646.05	980102.20	-7.46	-169.98	.41	-169.57
WI183	39.	8.97	112.	23.65	1435.	979659.69	980105.13	-2.60	-163.00	.19	-162.81
WI185	39.	8.42	112.	24.55	1421.	979661.01	980104.34	-4.81	-163.64	.15	-163.49
WI193	39.	.49	112.	24.55	1448.	979641.82	980092.67	-4.01	-165.86	.45	-165.41
WI194	39.	.72	112.	27.67	1415.	979640.54	980093.01	-15.81	-173.97	.19	-173.78
WI202	39.	1.18	112.	20.41	1526.	979625.79	980093.68	3.03	-167.54	1.05	-166.49
WI213	39.	1.90	112.	15.63	1686.	979590.79	980094.73	16.35	-172.10	2.35	-169.75
WI215	39.	2.84	112.	16.68	1600.	979612.05	980096.11	9.69	-169.15	1.57	-167.58
WI216	39.	3.13	112.	15.88	1625.	979606.82	980096.54	11.74	-169.89	1.87	-168.02

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE FOUGUER	T.C.	COMPLETE FOUGUER
WI453	39.	6.85	112.	27.63	1406.	979656.72	980102.02	-11.41	-168.57	.03	-168.54
WI454	39.	5.99	112.	27.56	1405.	979653.41	980100.75	-13.77	-170.81	.05	-170.76
77101	38.	58.12	112.	21.69	1511.	979616.49	980089.18	-6.40	-175.29	1.05	-174.24
77102	38.	56.12	112.	22.37	1492.	979617.90	980086.23	-7.91	-174.69	1.49	-173.19
77119	38.	56.37	112.	32.86	1423.	979625.55	980086.61	-21.92	-180.98	.12	-180.86
77120	38.	56.48	112.	38.19	1429.	979611.82	980086.77	-33.97	-193.70	-.07	-193.77
77121	38.	56.46	112.	35.98	1427.	979616.50	980086.74	-29.88	-189.38	-.02	-189.40
77122	38.	56.45	112.	35.43	1429.	979617.42	980086.73	-28.32	-188.05	-.01	-188.06
77125	38.	55.32	112.	30.23	1430.	979629.58	980085.06	-14.19	-174.03	.30	-173.73
77127	38.	53.15	112.	26.33	1447.	979624.51	980081.87	-10.83	-172.57	.93	-171.64
77129	38.	55.81	112.	20.38	1584.	979598.16	980085.78	1.19	-175.86	2.41	-173.45
77130	38.	56.08	112.	20.14	1588.	979597.26	980086.17	1.14	-176.36	2.33	-174.03
77132	38.	52.64	112.	24.70	1470.	979617.87	980081.12	-9.61	-173.92	1.55	-172.37
77133	38.	53.30	112.	27.19	1443.	979625.96	980082.09	-10.83	-172.12	.73	-171.39
77134	38.	53.78	112.	28.03	1437.	979627.57	980082.79	-11.77	-172.39	.57	-171.82
77135	38.	54.21	112.	28.76	1430.	979628.82	980083.44	-13.32	-173.16	.44	-172.72
77139	38.	52.52	112.	33.10	1430.	979621.75	980080.95	-17.90	-177.74	.25	-177.49
77140	38.	51.91	112.	34.02	1454.	979611.83	980080.05	-19.53	-182.05	.21	-181.84
77202	38.	48.10	112.	26.20	1529.	979596.15	980074.45	-6.46	-177.36	1.71	-175.65
77205	38.	48.25	112.	28.70	1501.	979601.86	980074.67	-9.61	-177.38	1.14	-176.24
77230	38.	46.80	112.	24.08	1602.	979574.45	980072.55	-3.73	-182.79	3.67	-179.12
77233	38.	50.40	112.	26.35	1474.	979612.61	980077.84	-10.35	-175.11	1.27	-173.84
77234	38.	50.38	112.	26.90	1472.	979613.47	980077.80	-10.08	-174.61	1.13	-173.48
77235	38.	50.37	112.	27.84	1466.	979616.53	980077.80	-8.87	-172.73	.91	-171.82
77236	38.	50.23	112.	28.33	1468.	979617.34	980077.59	-7.22	-171.31	.84	-170.48
77237	38.	50.23	112.	29.15	1462.	979618.56	980077.59	-7.86	-171.27	1.82	-169.45
77239	38.	50.91	112.	30.24	1453.	979619.03	980078.59	-11.17	-173.58	.52	-173.06
77240	38.	50.91	112.	30.71	1453.	979618.53	980078.59	-11.67	-174.08	.49	-173.59
77241	38.	50.91	112.	31.39	1443.	979619.98	980078.59	-13.31	-174.60	.42	-174.18
77242	38.	50.91	112.	31.90	1442.	979619.25	980078.59	-14.35	-175.53	.38	-175.15
77243	38.	50.91	112.	32.49	1431.	979621.26	980078.59	-15.73	-175.69	.37	-175.31
77244	38.	50.90	112.	33.08	1431.	979619.70	980078.58	-17.28	-177.23	.33	-176.90
77245	38.	50.93	112.	33.68	1436.	979617.09	980078.62	-18.39	-178.90	.31	-178.59

STAT.	LATITUDE		LONGITUDE		ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
WI218	39.	8.40	112.	15.52	1574.	979623.20	980104.30	4.62	-171.31	1.09	-170.22
WI222	39.	9.28	112.	17.78	1526.	979636.49	980105.60	1.81	-168.76	.76	-168.00
WI225	39.	9.28	112.	21.15	1463.	979652.14	980105.60	-1.98	-165.51	.66	-164.85
WI226	39.	9.32	112.	21.92	1455.	979654.13	980105.66	-2.47	-165.10	.30	-164.80
WI227	39.	8.16	112.	19.74	1474.	979645.55	980103.94	-3.51	-168.27	.52	-167.75
WI229	39.	12.81	112.	17.78	1618.	979632.25	980110.79	20.77	-160.08	1.17	-158.92
WI230	39.	12.60	112.	15.71	1713.	979607.68	980110.48	25.32	-165.65	1.20	-164.45
WI231	39.	13.18	112.	16.26	1707.	979609.15	980111.33	24.60	-166.20	1.33	-164.87
WI232	39.	11.93	112.	20.03	1527.	979648.17	980109.51	9.89	-160.79	.58	-160.21
WI233	39.	11.04	112.	20.03	1505.	979643.02	980108.20	4.26	-163.96	.53	-163.43
WI234	39.	10.17	112.	20.02	1487.	979648.15	980106.91	.12	-166.09	.51	-165.58
WI258	39.	11.94	112.	24.54	1440.	979667.75	980109.52	2.61	-158.35	.15	-158.20
WI260	39.	10.47	112.	24.56	1447.	979663.75	980107.35	2.95	-158.79	.13	-158.66
WI421	39.	14.51	112.	21.12	1568.	979651.08	980113.30	21.66	-153.60	.76	-152.84
WI425	39.	14.60	112.	24.26	1465.	979673.98	980113.43	12.64	-151.11	.28	-150.83
WI426	39.	12.82	112.	24.43	1445.	979671.15	980110.80	6.26	-155.25	.19	-155.07
WI427	39.	12.81	112.	23.43	1463.	979667.25	980110.79	7.94	-155.59	.27	-155.32
WI428	39.	14.63	112.	26.06	1430.	979679.50	980113.47	7.33	-152.51	.15	-152.36
WI528	39.	12.82	112.	18.91	1588.	979639.93	980110.80	18.23	-159.27	.89	-158.38
WI430	39.	14.38	112.	18.50	1681.	979622.77	980113.09	28.42	-159.47	1.54	-157.93
WI431	39.	13.69	112.	20.02	1580.	979644.87	980112.09	20.36	-156.24	.82	-155.42
WI432	39.	13.69	112.	21.15	1536.	979655.08	980112.09	17.00	-154.69	.62	-154.07
WI433	39.	12.82	112.	22.29	1487.	979662.49	980110.80	10.57	-155.64	.39	-155.25
WI434	39.	12.82	112.	21.17	1512.	979656.92	980110.80	12.71	-156.29	.51	-155.78
WI435	39.	12.82	112.	20.05	1547.	979647.20	980110.80	13.80	-159.12	.69	-158.44
WI436	39.	10.59	112.	22.83	1458.	979657.48	980107.52	-.11	-163.08	.24	-162.84
WI437	39.	9.02	112.	26.09	1410.	979662.58	980105.21	-7.51	-165.11	.07	-165.04
WI438	39.	10.57	112.	26.82	1411.	979667.14	980107.49	-4.93	-162.64	.03	-162.61
WI439	39.	11.34	112.	27.99	1405.	979669.45	980108.63	-5.61	-162.65	-.02	-162.67
WI440	39.	11.99	112.	29.03	1402.	979670.36	980109.59	-6.58	-163.29	-.05	-163.34
WI441	39.	10.77	112.	29.09	1404.	979666.51	980107.79	-8.01	-164.94	-.06	-165.00
WI443	39.	6.19	112.	36.68	1402.	979632.67	980101.04	-35.72	-192.43	-.17	-192.60
WI451	39.	9.37	112.	28.89	1405.	979656.96	980105.73	-15.20	-172.24	-.05	-172.29

STAT.	LATITUDE	LONGITUDE	ELEV.	OBSERVED GRAVITY	THEOR. GRAVITY	FREE AIR	SIMPLE BOUGUER	T.C.	COMPLETE BOUGUER
77348	39. 5.30	112. 35.20	1418.	979631.85	980099.73	-30.28	-188.78	-.13	-188.91
77350	39. 6.64	112. 35.79	1423.	979631.70	980101.71	-30.87	-189.93	-.14	-190.07
77351	39. 7.23	112. 34.16	1447.	979633.54	980102.57	-22.49	-184.23	.02	-184.22
77355	39. .36	112. 31.79	1410.	979631.55	980092.47	-25.80	-183.40	.04	-183.36
77361	39. .86	112. 33.08	1415.	979626.83	980093.21	-29.72	-187.88	-.02	-187.90

APPENDIX B

LIST OF PHYSICAL PROPERTY MEASUREMENTS

Table 3. DENSITY MEASUREMENTS -- REVISED

The technique used to measure the densities is described by Carrier (1979).

Rock	Sample Location		Saturated	Dry	Percent
<u>Type</u>	<u>Latitude</u> (North)	<u>Longitude</u> (West)	<u>Density</u> (g/cc)	<u>Density</u> (g/cc)	<u>Porosity</u> Percent
Rhyolite	38°54.79'	112°29.78'	2.38	2.31	6
Rhyolite	38°54.79'	112°29.78'	2.20	2.02	18
Rhyolite	38°54.79'	112°29.78'	2.37	2.20	17
Obsidian	38°54.79'	112°29.78'	2.32	2.25	7
Travertine	38°50.66'	112°29.78'	2.55	2.47	8
Travertine	38°51.99'	112°29.87'	2.28	2.07	21
Arkose	39°02.09'	112°19.78'	2.61	2.56	5
Limestone	39°02.09'	112°19.78'	2.82	2.80	2
Sandstone	39°02.09'	112°19.78'	2.60	2.50	10
Basalt	38°53.21'	112°31.96'	2.22	1.98	24
Basalt	39°06.71'	112°32.91'	2.52	2.49	3
Limestone	39°04.05'	112°18.89'	2.72	2.72	0.2
Sandstone	39°02.09'	112°19.78'	2.61	2.58	4
Limestone	39°02.09'	112°19.78'	2.71	2.70	1