

This map is part of a folio of maps of the Silver City, New Mexico-Arizona, 1° x 2° quadrangle prepared under the U.S. Geological Survey's Continental United States Mineral Assessment Program (CUSMAP).

COMPLETE BOUGUER GRAVITY ANOMALY MAP

This complete Bouguer gravity anomaly map, utilizing a total of 4728 stations is derived from several different sources which are described in detail by Wynn (1980). Observed gravity values have been adjusted to the 1971 base values of the International Gravity Standardization Net (DMAAC, 1974). The Geodetic Reference System, 1967 Formula (IAG, 1967) was used to compute the theoretical gravity, and terrain corrections were made by means of DMA digital terrain data and an assumed average rock density of 2.67 g/cm³, using a computer program developed by Plouff (1977). A 2-kilometer equal grid was obtained with a UTM projection using a program by M. W. Webring, U.S. Geological Survey, based on the method of minimum curvature (Briggs, 1974) and contoured using spline interpolations between grid points.

REFERENCES

Briggs, I. C., 1974, Machine contouring using minimum curvature: *Geophysics*, Vol. 39, No. 1, p. 39-48.
 Defense Mapping Agency Aerospace Center, 1974, World relative gravity network, North America, Part 2, DMAAC Reference Publication No. 25, with supplement updating gravity values to the International Gravity Standardization Net 1971, 1634 pp.
 International Association of Geodesy, 1967, Geodetic Reference System, 1967; International Association of Geodesy Special Publication No. 3, 74 pp.
 Plouff, Donald, 1977, Preliminary documentation for a FORTRAN program to compute gravity terrain corrections based on topography digitized on an aerographic grid: U.S. Geological Survey Open-File Report 77-535, 45 pp.
 Wynn, J. C., 1980, Principal facts for gravity stations and base-station net in the Silver City 1° x 2° quadrangle, Arizona and New Mexico: U.S. Geological Survey Open-File Report 81-40, 136 p.

-175- COMPLETE BOUGUER ANOMALY CONTOURS
Contour interval 2.5 milligals

- + GRAVITY STATION
- H GRAVITY HIGH
- L GRAVITY LOW

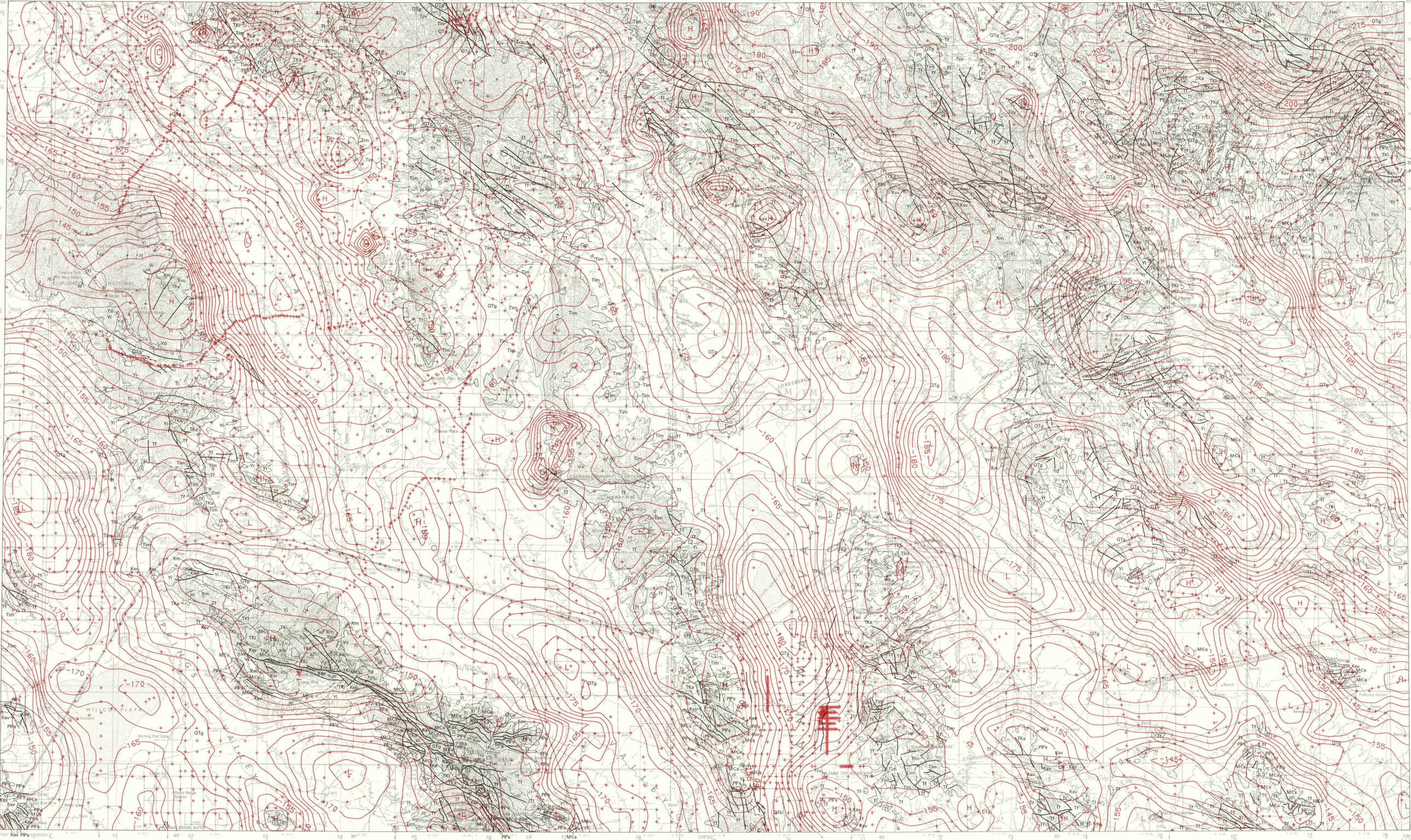
CORRELATION OF MAP UNITS

QTg	QTb	Tov	QUATERNARY
TI	Tim	TKi	
TKa			CRETACEOUS
Kav			
PPs			PROTEROZOIC Y
Yd	Yi		
Xm			

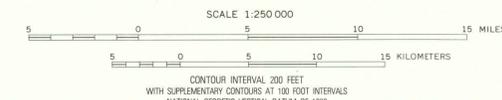
DESCRIPTION OF MAP UNITS

QTg	GRAVEL, SAND, SILT, AND CLAY (QUATERNARY AND TERTIARY)—Mainly alluvium on stream terraces, fan aprons, and pediments; colluvium on hill slopes; and lacustrine and eolian deposits in basins
QTb	BASALT (QUATERNARY AND TERTIARY)—Basalt and basaltic andesite flows and small intrusions
Tov	CONGLOMERATE AND VOLCANIC ROCKS (TERTIARY)—Mainly coarse conglomerate with intercalated mafic to intermediate flows and felsic tuffs
Tim	INTERMEDIATE TO MAFIC VOLCANIC ROCKS (TERTIARY)—Mainly flows, scoria cones, domes, and small intrusions. Locally includes small units of felsic volcanic rocks and volcanoclastic rocks
TI	FELSIC VOLCANIC ROCKS (TERTIARY)—Mainly flows, domes, and pyroclastic deposits. Locally includes small units of more mafic volcanic rocks and volcanoclastic rocks
TKi	INTRUSIVE ROCKS (TERTIARY)—Includes granitic rocks in plutons and aphanitic and porphyritic rocks in plugs and dikes
TKa	INTRUSIVE ROCKS (TERTIARY AND CRETACEOUS)—Includes granitic rocks, commonly porphyritic, in plutons and porphyritic rocks and breccias in dikes, plugs and small stocks
TKa	ANDESITIC ROCKS (TERTIARY AND CRETACEOUS)—Flows and small intrusions. Locally includes small units of sedimentary rocks
Kav	SEDIMENTARY AND VOLCANIC ROCKS (CRETACEOUS)—Mainly shale, siltstone, sandstone and conglomerate; includes some limestone and felsic to intermediate volcanic rocks. Mainly Lower Cretaceous Bisbee Group to the southwest and Upper Cretaceous Colorado Shale to the northeast. Includes Jurassic and Triassic rocks in extreme southwest corner of quadrangle
PPs	SEDIMENTARY ROCKS (PERMIAN AND PENNSYLVANIAN)—Mainly limestone; includes some dolomite and sandstone. Chiefly Naco Group
MCs	SEDIMENTARY ROCKS (MISSISSIPPIAN TO CAMBRIAN)—Mainly limestone, dolomite, shale, quartzite, and sandstone; includes some conglomerate and arkose sandstone
Yd	DIABASE (PROTEROZOIC Y)—Includes gabbro, and metadiorite in sills, dikes and irregular masses
Yi	INTRUSIVE ROCKS (PROTEROZOIC Y)—Granitic rocks, commonly porphyritic or porphyroblastic, in plutons
Xm	METASEDIMENTARY AND METAVOLCANIC ROCKS (PROTEROZOIC X)—Includes Pinal Schist and unnamed gneisses

- CONTACT
- - - FAULT—dotted where concealed
- STRIKE AND DIP OF BEDS
 - ↘ Inclined
 - ↖ Vertical
- STRIKE AND DIP OF FOLIATION—Includes primary flow foliation of volcanic rocks and secondary metamorphic foliation of metamorphic rocks
 - ↘ Inclined
 - ↖ Vertical



Base from U.S. Geological Survey, 1954, revised 1970



Geology by J. R. Cooper, Harold Drewes, T. L. Finnell, D. C. Hedlund, R. M. Hermon, B. B. Houser, W. R. Jones, V. A. Lawrence, S. L. Moore, R. B. Morrison, W. F. Pratt, D. H. Richter, and C. H. Thomas, U.S. Geological Survey. M. Sharfjoub, and P. E. Damon, University of Arizona; E. G. Deal, Eastern Kentucky University; W. E. Elston, University of New Mexico; J. E. Cunningham, Western New Mexico State University. Compiled 1979

COMPLETE BOUGUER GRAVITY ANOMALY MAP OF THE SILVER CITY 1° x 2° QUADRANGLE, NEW MEXICO-ARIZONA

By
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1981