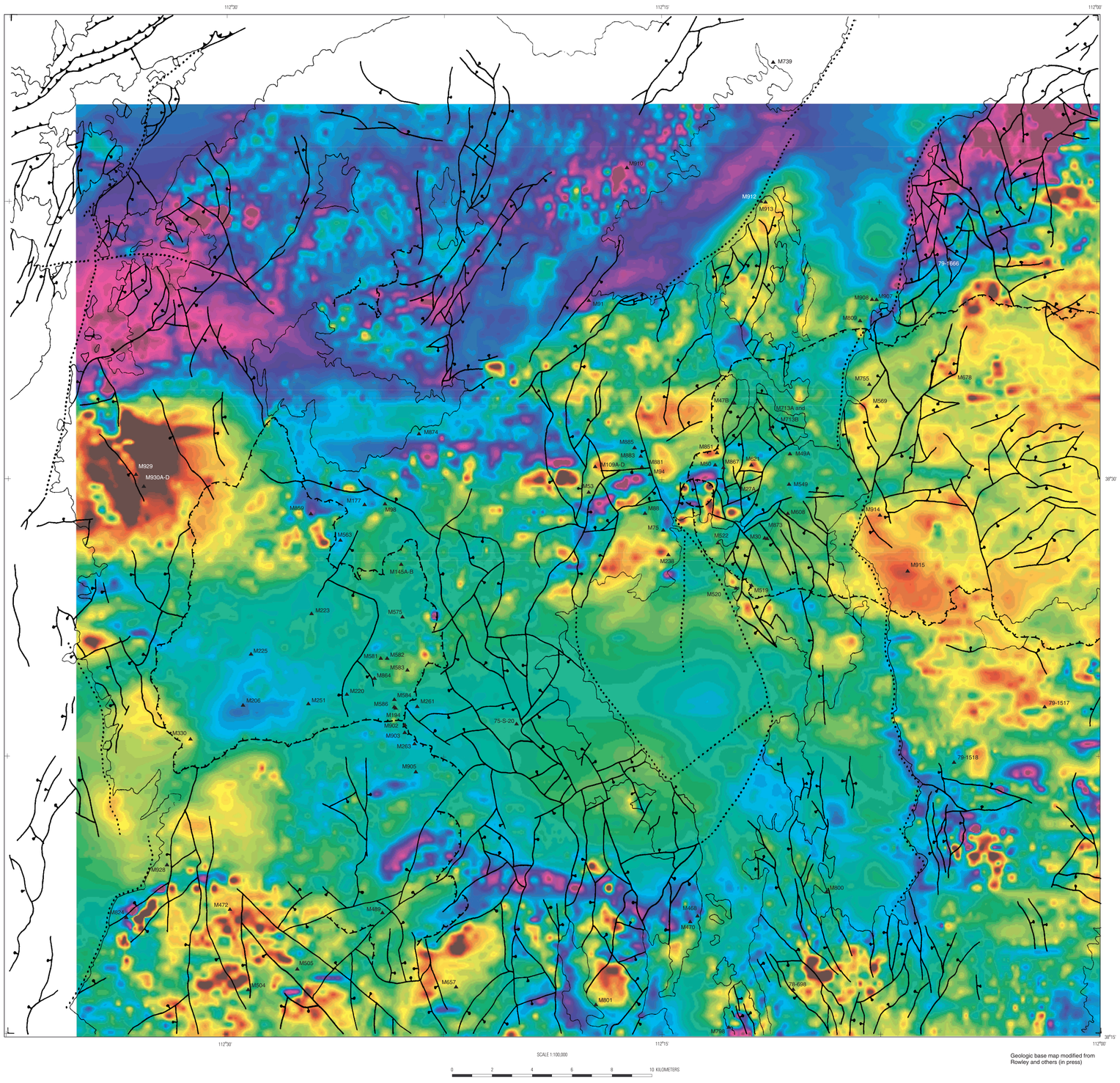
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

GEOLOGIC INVESTIGATIONS SERIES
I–2645–B
Pamphlet accompanies map



MAP *A*. AEROMAGNETIC MAP

EXPLANATION

Magnetic field intensity, in nanoteslas—Contour interval 25 nanoteslas

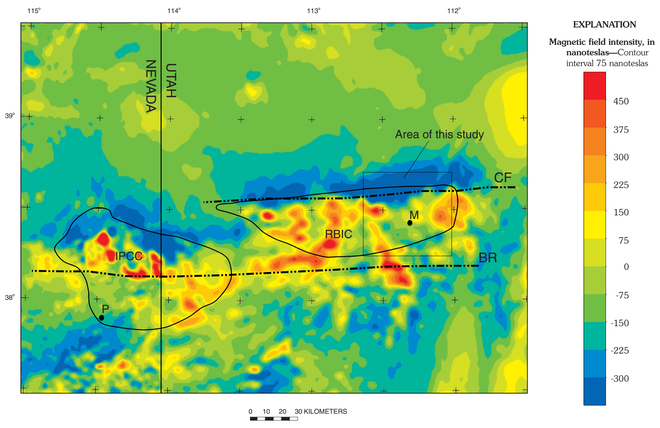
500 475 450 425 400 375 350 325 300 275 250 225 200 175 150 125 100 75 50 25 0 -25 -50 -75 -100 -125 -150 -175 -200 -225 -250 -275 -300 -325 -350 -375 -400 -425 -450 -475 -500 -525 -550 -575 -600 -625 -650 -675 -700 -725 -750 -775 -800 -825 -850 -875 -900 -925 -950 -975 -1,000

▲ 79-1518 **Sample locality**—Refer to table 1 for description by sample number

Edge of Quaternary unit

Fault—Dotted where inferred; bar and ball on downthrown side

Boundary of major caldera

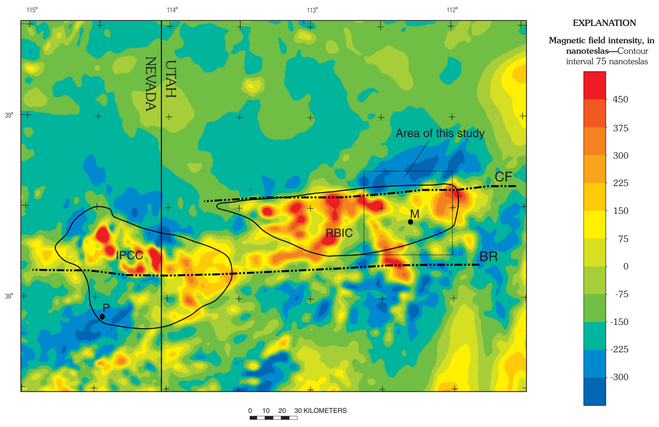


EXPLANATION

Magnetic field intensity, in nanoteslas—Contour interval 75 nanoteslas

450 375 300 225 150 75 0 -75 -150 -225 -300

Figure 2. Composite aeromagnetic map of southeastern Nevada and southwestern Utah, showing regional aeromagnetic signatures associated with the Pioche-Marysvale igneous belt. Data from several original surveys were merged to make this map, and where necessary were upward continued to 1,000 ft from original survey elevations, so are different from those on map *A*. Upward continuation emphasizes broad features at the expense of details. IPCC, Indian Peak Caldera Complex (Rowley and others, 1998); RBIC, Richfield Belt of Intrusions and Calderas (Steven and Morris, 1986); M, Marysvale; P, Pioche; CF, Cove Fort transverse zone; BR, Blue Ribbon transverse zone.

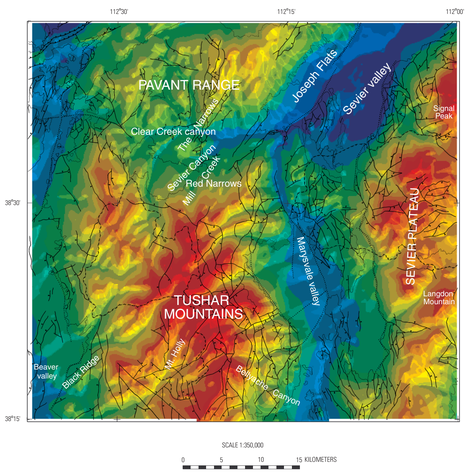


EXPLANATION

Magnetic field intensity, in nanoteslas—Contour interval 75 nanoteslas

450 375 300 225 150 75 0 -75 -150 -225 -300

Figure 3. Reduced-to-pole (RTP) aeromagnetic map of southeastern Nevada and southwestern Utah. A mathematical process was used to make aeromagnetic highs and lows fall more directly over their sources. Nevertheless, the low persists north of the study area. Generally, on RTP maps, we expect highs to indicate plutons or thick sequences of volcanic rocks, and lows to reflect reversed-polarity extrusive rocks that have strong remanent magnetization. IPCC, Indian Peak Caldera Complex (Rowley and others, 1998); RBIC, Richfield Belt of Intrusions and Calderas (Steven and Morris, 1986); M, Marysvale; P, Pioche; CF, Cove Fort transverse zone; BR, Blue Ribbon transverse zone.



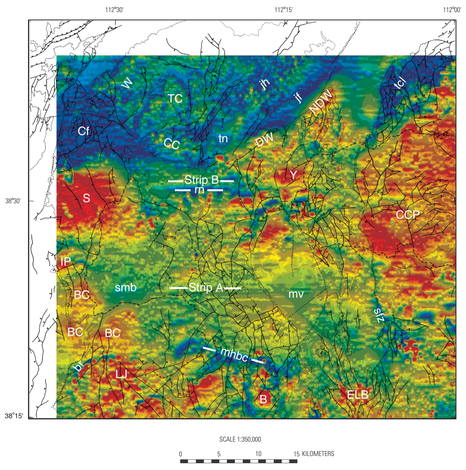
EXPLANATION

[See maps *A* and *B* for explanation of geologic map symbols]

Elevation, in meters—Contour interval 150 meters

3250 3100 2950 2800 2650 2500 2350 2200 2050 1900 1750

Figure 4. Topographic map of the central Marysvale volcanic field, Utah, showing selected geographic features. Display is a color-shaded relief image, illuminated from the southeast.



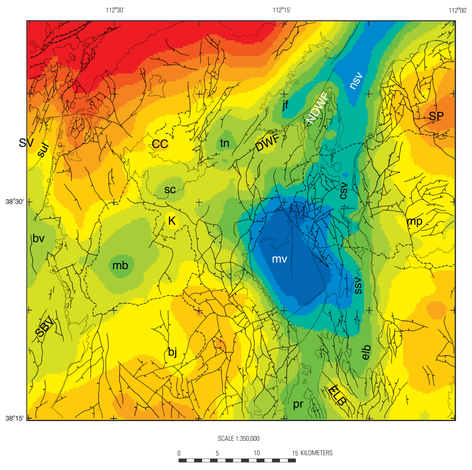
EXPLANATION

[See maps *A* and *B* for explanation of geologic map symbols]

Magnetic field intensity, in nanoteslas—Contour interval 100 nanoteslas

300 200 100 0 -100 -200 -300 -400 -500 -600 -700

Figure 10. Key to aeromagnetic map of the central Marysvale volcanic field, Utah (map *A*). Shadows are from a computer-driven "sun" at 60° elevation illuminating the data from the south; such a display emphasizes problems that may have occurred in reducing and compositing the original data. Index letters are keyed to aeromagnetic anomalies that are discussed in the text; lower case, low; upper case, high. Geologic map overlay from figure 6.



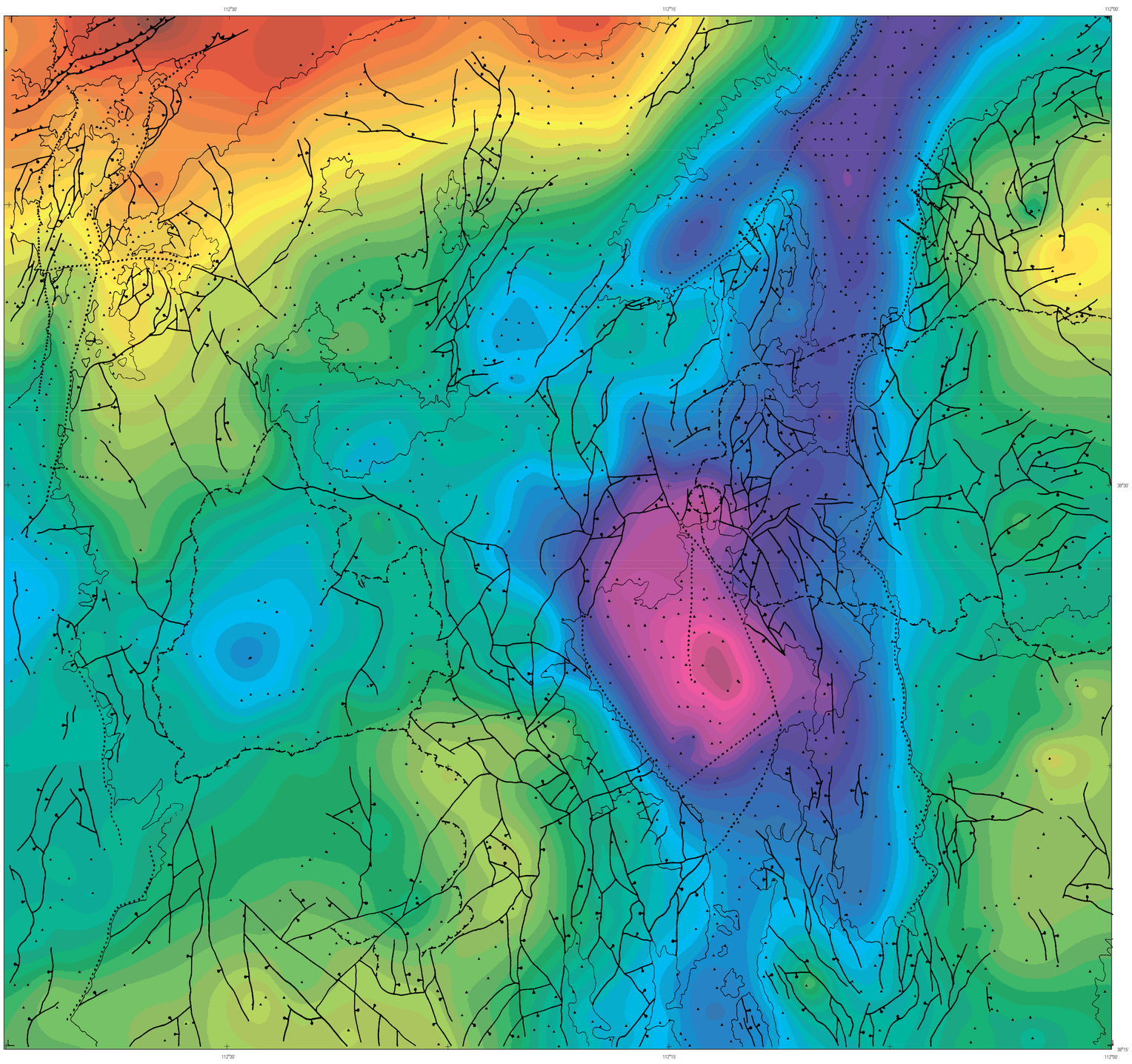
EXPLANATION

[See maps *A* and *B* for explanation of geologic map symbols]

Complete Bouguer gravity field, in milligals— Contour interval 5 milligals

-180 -185 -190 -195 -200 -205 -210 -215 -220 -225 -230

Figure 11. Key to Bouguer gravity map of the central Marysvale volcanic field, Utah (map *B*). Index letters are keyed to gravity anomalies that are discussed in the text; lower case, low; upper case, high. Geologic map overlay from figure 6.



MAP *B*. BOUGUER GRAVITY MAP

EXPLANATION

Complete Bouguer gravity field, in milligals—Contour interval 1.25 milligals

-165.00 -166.25 -167.50 -168.75 -170.00 -171.25 -172.50 -173.75 -175.00 -176.25 -177.50 -178.75 -180.00 -181.25 -182.50 -183.75 -185.00 -186.25 -187.50 -188.75 -190.00 -191.25 -192.50 -193.75 -195.00 -196.25 -197.50 -198.75 -200.00 -201.25 -202.50 -203.75 -205.00 -206.25 -207.50 -208.75 -210.00 -211.25 -212.50 -213.75 -215.00 -216.25 -217.50 -218.75 -220.00 -221.25 -222.50 -223.75 -225.00 -226.25 -227.50 -228.75 -230.00 -231.25 -232.50 -233.75 -235.00 -236.25 -237.50 -238.75 -240.00

▲ **Gravity station**

Edge of Quaternary unit

Fault—Dotted where inferred; bar and ball on downthrown side

Boundary of major caldera

Reduction density 2.4 g/cc
Geologic base map modified from Rowley and others (in press)
Edited by Diane E. Lane
Digital cartography by David L. Campbell and Diane E. Lane
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AEROMAGNETIC AND GRAVITY MAPS OF THE CENTRAL MARYSVALE VOLCANIC FIELD, SOUTHWESTERN UTAH

By

David L. Campbell, Thomas A. Steven, Charles G. Cunningham, and Peter D. Rowley

1999

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