RESIDUAL BOUGUER GRAVITY ANOMALY MAP OF ARIZONA (IGSN 71)

SCALE: 1:1,000,000

10 0 10 20 30 40 50 MILES

10 0 10 20 30 40 50 KILOMETERS

BASE BY U.S. GEOLOGICAL SURVEY, 1955
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS 33° AND 45°
CONTOUR INTERVAL 5 MILLIGALS

By

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1980

Gravity data were obtained from surveys by the Laboratory of Geophysics of the University of Arizona, U.S. Defense Mapping Agency, U.S. Geological Survey, Exxon Corporation, and mining companies and contractors. The index map gives primary sources of data for particular areas. A density of 2.67 g/cm³ was used for the Bouguer corrections. Terrain corrections were applied for a radial zone of 2.6 to 167 km. An isostatically controlled regional gravity map as shown on the accompanying index map was constructed from a two-harmonic Fourier trend surface of elevations in and near Arizona using a density of 2.67 g/cm³ (see Aiken, C. L. V., 1976, Analysis of Gravity Anomalies in Arizona: Ph.D. dissertation, University of Arizona; Ann Arbor, University Microfilms Order DBJ77-02313 and Lysonski, J. C., 1980, The IGSN 71 Residual Bouguer Gravity Anomaly Map of Arizona: M.S. thesis, University of Arizona). The residual gravity anomaly values are the differences between the regional gravity values and the complete Bouguer anomaly values.

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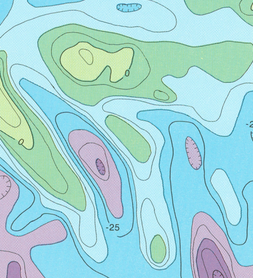
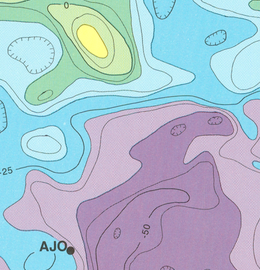


Two-harmonic Fourier trend surface of topography

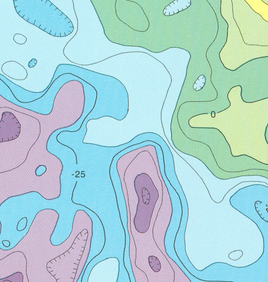
Bouguer corrected by the following equation:

$$g_{BC} = -2\pi G\rho(EL_S - EL_R) + CC + TC$$

where:
G = universal gravitational constant
ρ = 2.67 g/cm³
EL_S = station elevation
EL_R = regional elevation
CC = curvature correction using (EL_S − EL_R) as thickness of slab
TC = terrain correction



Regional gravity correction (derived from a two-harmonic Fourier trend surface of a topography using a density of 2.67 g/cm³). Contour interval equals 25 milligals.



Index map of sources of data

MILLIGALS

>40	40 to 30	30 to 20	20 to 10	10 to 0	0 to −10	−10 to −20	−20 to −30	−30 to −40	<−40

SOURCE DATA

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