

Explanation

The principal gravity data used for this map were generated by various projects of the U.S. Geological Survey. This set was then supplemented with data received from the Defense Mapping Agency Gravity Library. The observed gravity data, based on the International Gravity Standardization Net (IGSN71) datum (Morrell, 1974), were reduced to free air for the theoretical value of gravity at sea level (International Association of Geodesy, 1971, p. 40) and Helmert's (1904, p. 64) formula for the free air correction. Squarer, curvature, and terrain corrections (due to a distance of 160.7 km from the station) at a standard reduction density of 2.67 g/cm³ were added to the free-air anomaly at each station to determine complete Bouguer gravity anomalies.

Editing of data involved examination and subsequent deletion of stations which produced large anomalies not supported by values at neighboring stations. This procedure probably was successful in eliminating gross errors in areas with dense gravity coverage but incorrect values may still exist in areas of sparse coverage.

The bulk of the inconsistencies remaining within this data set probably stem from observed gravity values based on a datum other than IGSN71 and from errors in terrain corrections. Because the gravity data came from a variety of different sources, some datum problems were unavoidable. However, based on comparisons of redundant observations from different sources, datum inconsistencies are believed to be less than 1 mgal. Terrain corrections (within 30% of the size of observation) were applied by hand only to some of the U.S. Geological Survey data and generated by computer for the rest of the data set. The error introduced at this stage probably is less than 1 mgal for most stations but could be larger for stations in areas of extreme topographic relief. In view of these problems, the data are believed, in general, to be accurate to within 2 mgals.

Contouring by computer with 1000 meter grid size.

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Data Sources

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This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

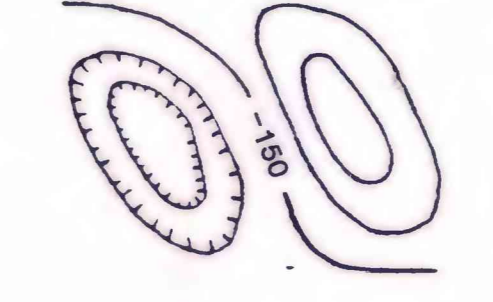
BOUGUER AND ISOSTATIC RESIDUAL GRAVITY MAPS OF THE COLORADO RIVER REGION, INCLUDING THE KINGMAN, NEEDLES, SALTON SEA, AND EL CENTRO QUADRANGLES

KINGMAN BOUGUER GRAVITY MAP

by

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1986



Gravity Anomaly Contours
Contour interval is 2 mgal. Hachured contours indicate closed gravity lows.



LOCATION DIAGRAM