

Base from U.S. Geological Survey 1954



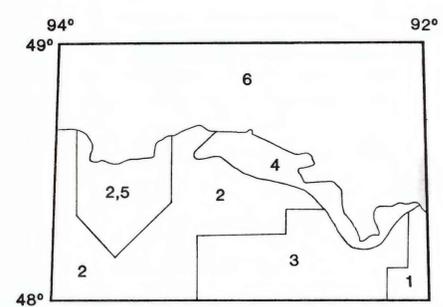
EXPLANATION

5 milligal contour interval, dashed where approximate.

1 milligal contour interval, dashed where approximate.

Contours are hachured when enclosing a gravity low.

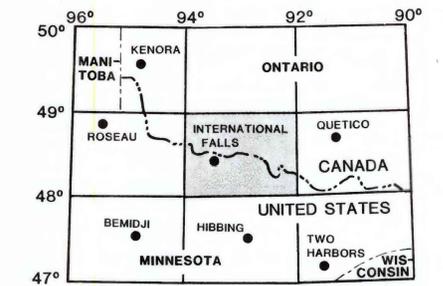
Gravity station



- INDEX TO AREAS OF FIELD RESPONSIBILITY AND INSTRUMENTATION**
1. R. J. Ikola (Minnesota Geological Survey), LaCoste-Romberg G-142, 1968.
 2. R. J. Ferderer and B. L. Gulbranson (Minnesota Geological Survey), LaCoste-Romberg G-320, 1983.
 3. S. J. Mills and James Simonet (Minnesota Geological Survey), LaCoste-Romberg G-226 and G-320, 1985.
 4. V. W. Chandler (Minnesota Geological Survey), LaCoste-Romberg G-320, 1985.
 5. R. J. Horton (U.S. Geological Survey), and K. L. Malmquist (Minnesota Department of Natural Resources), LaCoste-Romberg G-551, 1985.
 6. M. J. S. Innes (Geological Survey of Canada), North American NA-085, 1949; M. J. S. Innes (Geological Survey of Canada), North American NA-085 and Worden W-44, 1953; R. K. McConnell (Geological Survey of Canada), Worden U-391, W-460, LaCoste-Romberg G-74, and G-75, 1965; J. F. Halpenny (Geological Survey of Canada), Worden U-807 and LaCoste-Romberg G-74, 1968.

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LOCATION DIAGRAM

INTRODUCTION

This map was compiled by the U.S. Geological Survey in cooperation with the Minnesota Geological Survey using data from more than 1900 gravity stations. The data were collected primarily by the Minnesota Geological Survey and were supplemented with data obtained from the Minnesota Department of Natural Resources, the Geological Survey of Canada, the U.S. Department of Defense gravity data base, and the U.S. Geological Survey. The original data set extended beyond the boundary of this map to ensure accuracy along the map edges. Complete Bouguer anomalies were calculated using a reduction density of 2.67 g/cm³, the 1967 gravity formula (International Association of Geodesy, 1967), and observed gravity values relative to the IGSN-71 datum (Morelli and others, 1974). Terrain corrections, to a radial distance of 167 km around each station, were made using a computer program by Godson (unpub., 1978) in conjunction with U.S. Department of Defense digital terrain data. Principal facts for the gravity data and related information are given by Horton (1987). Previously published gravity maps, of this and neighboring quadrangles, are simple Bouguer anomaly maps reduced to the 1932 datum (Chandler and others, 1987; Chandler and others, 1985; McGinnis and others, 1973). For purposes of computer contouring, a data grid with 1 km spacing was produced from the irregularly distributed field data using a computer program by Webring (1981) based on a minimum curvature algorithm (Briggs, 1974). To enhance contour smoothness, the 1 km data were regridded to 0.5 km using a two dimensional spline function (Webring, unpub.). The gridded data were contoured at a 1 milligal interval using a computer program by Godson and Webring (1982). Contours are dashed in areas where field data are sparse. In large areas where field data are sparse (e.g., Canada), the contour interval is 5 milligals. Minor modifications of computer contours were done by hand.

References and Sources for Gravity Data

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Complete Bouguer gravity anomaly map of the International Falls 1°X2° Quadrangle, Minnesota and Ontario

By

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This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.