GRAVITY ANOMALY FIELD

NORTHERN YUKON, NORTHERN DISTRICT OF MACKENZIE AND BEAUFORT SEA

BOUGUER ON LAND, FREE AIR OFFSHORE

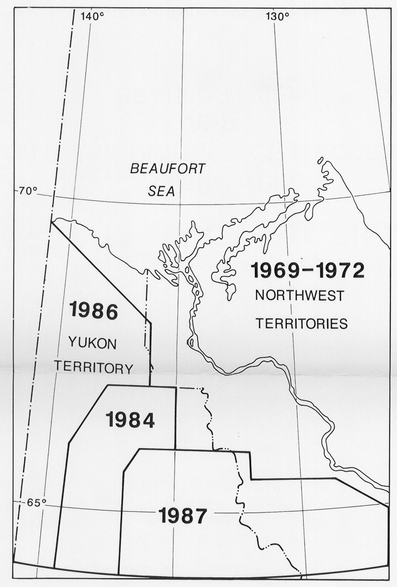
This map has been compiled from approximately 6100 measurements from the National Gravity Data Base, Geophysics Division, Ottawa. Gravity measurements have been reduced to the International Gravity Standardization Net 1971 (IGSN71) datum. Theoretical gravity values have been calculated from the Geodetic Reference System 1967 (GRS67) gravity formula. A standard density of 2.67 g. cm^{-3} has been used in the Bouguer correction.

The majority of the stations in the 1984, 1986 and 1987 survey areas (see insert map) have been regionally terrain corrected out to a distance of 30 km from each station using a 1 km by 1 km in-house digital terrain file. With few exceptions, terrain corrections were generally not required for data collected on surveys prior to 1984 due to the uniform nature of the terrain.

The 1986 and 1987 surveys were conducted under contract and used GPS (Global Positioning System) for positioning and elevation control. In 1984, the gravity survey was conducted by personnel from the Pacific Geoscience Centre, Sidney B.C. Horizontal and vertical positioning was derived from an Inertial Navigation System, operated and maintained by the Geodetic Survey of Canada, Ottawa. The remainder of the map area, including the offshore portion, was surveyed during the period 1969-1972 by personnel from the Earth Physics Branch, Ottawa (now the Geophysics Division, GSC). Land stations were commonly positioned using 1:250,000 scale topographic maps while a Decca Lambda chain was used for navigation and positioning on the sea ice. Elevations were computed for most regional stations by altimetry, water depths were either interpolated from Hydrographic charts or determined using an echo sounder. For further information regarding these earlier surveys refer to the following references.

Hornal, R.W., Sobczak, L.W., Burke, W.E.F. and Stephens, L.E., 1970. Preliminary results of gravity surveys over the Mackenzie Basin and Beaufort Sea, Gravity Map Series of the Earth Physics Branch, Ottawa, Maps 118, 119, 12pp.

Sobczak L.W., Stephens, L.E., Winter, P.J. and Hearty, D.B., 1973. Gravity measurements over the Beaufort Sea, Banks Island and Mackenzie Delta, Gravity Map Series of the Earth Physics Branch, Ottawa, Map 151, 16pp.



LEGEND

Gravity station..... •

Gravity depression.....

Gravity data gridded at 5 kilometres and contoured at 5 milligals

Gravity data are also available in digital format published as Open File 1691, March 1988, from the Geophysical Data Centre, 01 Observatory Crescent, Ottawa, Ontario, K1A 0Y3.

SCALE 1 : 1,000,000

10 0km 50 100

UNIVERSAL TRANSVERSE MERCATOR PROJECTION

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Amended Jan. 1989

GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF ENERGY, MINES AND RESOURCES

OPEN FILE 1832