URANIUM ppm

Airborne gamma-ray spectrometry data collected during the summer of 1974 by the Geological Survey of Canada are presented as contour maps of uranium concentration.

The airborne measurements were made using a spectrometer, with twelve 22.86 cm x 10.16 cm NaI(Tl) detectors, flown at a mean terrain clearance of 120 metres and 190 km/hr. Flight lines were at 5 km line spacing, and the flight lines are plotted on each contour map.

Uranium counts were measured over 2.5-second intervals. The data have been corrected for background, height variation and Compton scattering. The computer programs used to produce the contour maps are described by R. L. Grasty, 1972 "Airborne Gamma Spectrometry Data Processing Manual", GSC Open File No. 109. The maps are contoured in units of parts per million uranium.

The values for uranium concentration shown on the maps are "average surface concentrations" over the area sampled or analysed by the airborne spectrometer. This area generally includes some outcrop, overburden and water in small ponds, streams and swamps. Consequently, the average surface concentrations as shown on the maps are usually considerably lower than the concentrations in the bedrock. However, the radioelement distribution pattern shown by the contour maps reflects the distribution of the elements in the bedrock.

Factors for converting airborne measurements to element concentrations were determined by relating the corrected airborne count rates over test strips in the Ottawa area to the known ground radioelement concentrations (R. L. Grasty and B. W. Charbonneau, 1974, Gamma-ray Spectrometer Calibration Facilities, GSC Paper 74-1B, pp. 69-71.)

In order to produce the contour maps, data along the flight lines were averaged over seventeen 2.5-second counting intervals (approximately 2.2 km) and the effect of background count rates over the lakes were removed. This degree of averaging or smoothing is selected in order to (i) keep the smoothing to a minimum, i.e. have the smoothed values as close as possible to the original unsmoothed data, yet (ii) make the contouring grid dimension along the flight lines as large as possible, approaching the spacing between flight lines. Compromise between (i) and (ii) results in a rectangular grid (approximately 5 km by 2 km) of data used for contouring. As a result of these compilation procedures, contours in some cases may be distorted in a direction perpendicular to the flight lines. This sort of imperfection is difficult to avoid in contouring data on widely spaced flight lines. It does not detract from the value of the map as the product of a reconnaissance survey, indicating the regional radioelement distribution pattern, but one should not attempt to use these contour maps to pinpoint the precise location of exploration targets.

Airborne Radioactivity Survey 1975
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Base Map material supplied by Surveys and Mapping Branch.

Cartography by Geological Survey of Canada.

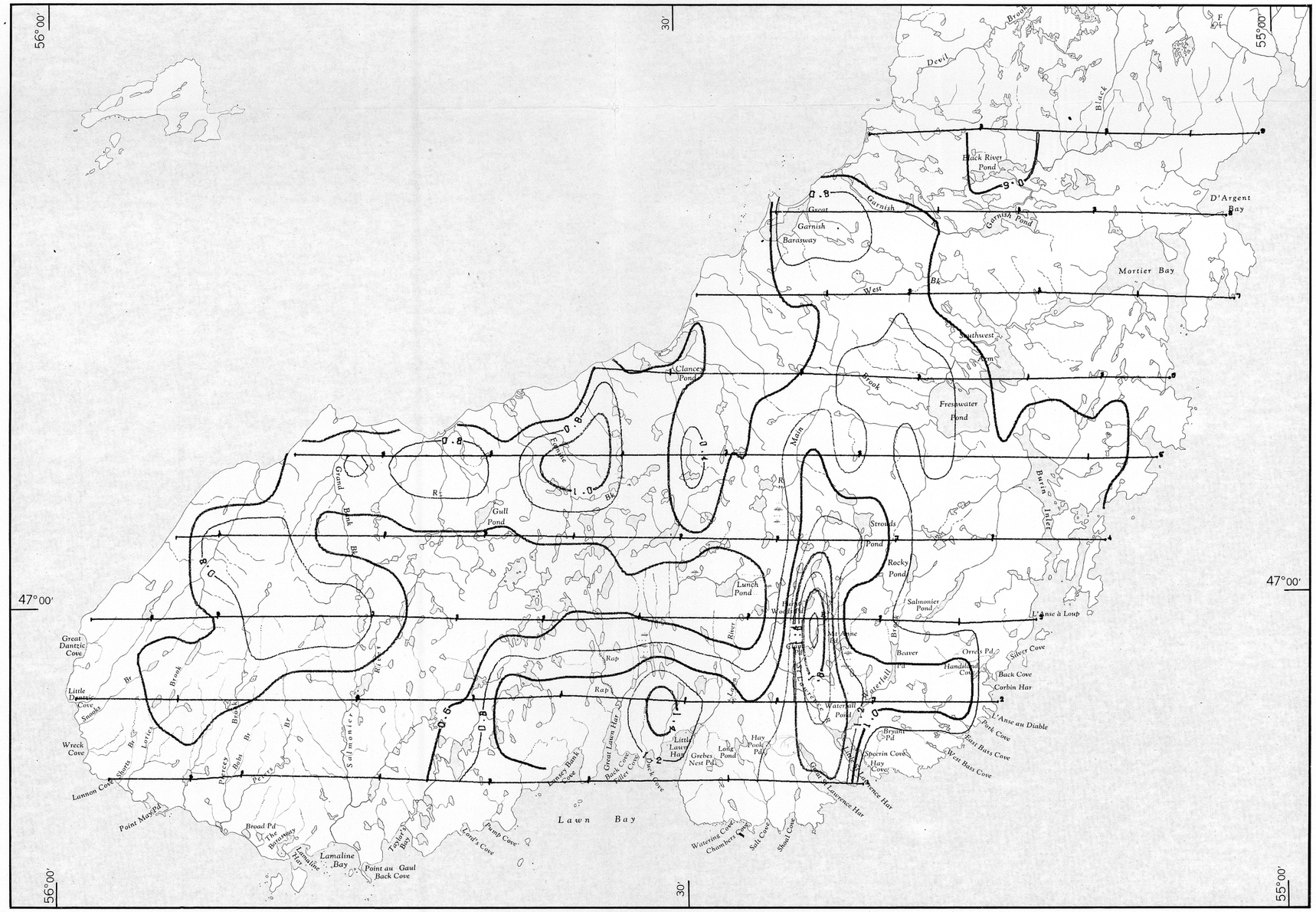
Scale 1:250,000

Miles 4 0 4 8 12 Miles

Kilometres 6 0 6 12 18 Kilometres

GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF ENERGY, MINES AND RESOURCES

AIRBORNE RADIOACTIVITY MAP



BURIN PENNINSULA

NEWFOUNDLAND

Parts of 1L, 1M

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