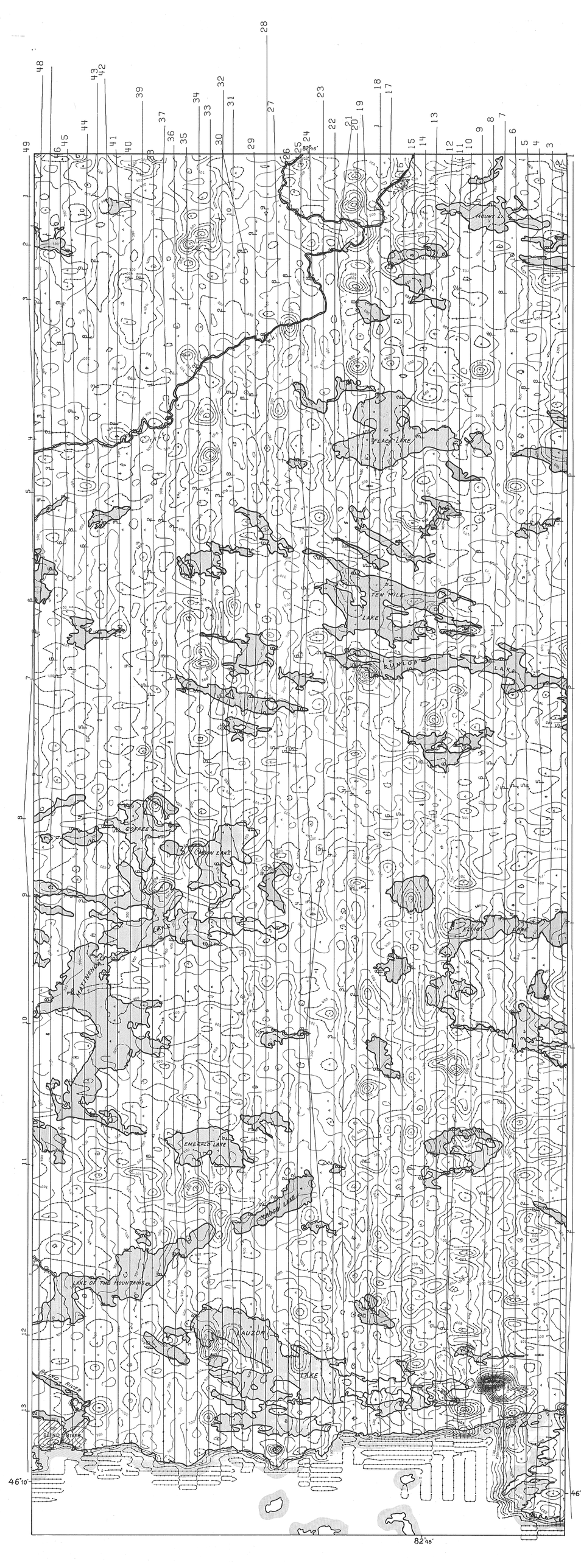


GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF ENERGY, MINES AND RESOURCES

AIRBORNE RADIOMETRIC MAP

ELLIOT LAKE
ONTARIO

Uranium: Thorium Ratio

Contour interval 0.001

The gamma radiation contours shown on the machine drawn contour map have been compiled from the profiles which are issued with these maps. Numbered flight-lines are plotted in position on each map. The detectors were 12, 9 x 4 inch NaI(Tl) crystals flown at a mean terrain clearance of 400 feet. The data has been corrected for background, height variation and Compton scattering in the crystals. Due to the statistical nature of the radiation considerable smoothing has been applied to the data. The contouring sequence is self-evident and points of local maxima are represented by triangles. The machine contouring was carried out using a technique developed by Hobroyd & Bhattacharyya (G.S.C. Paper 70-55).

Radiation from the ground is derived almost entirely from the uppermost 12 inches, irrespective of whether it is soil or rock. The Potassium, Uranium and Thorium maps represent the counts received in 2.5 seconds and in the case of the Integral for 0.5 seconds. The ratio maps represent the ratio of the counts of the respective elements. An approximate ground concentration may be obtained using the relation:

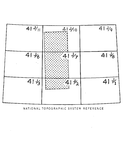
1 ppm Uranium ≈ 26 counts
1 ppm Thorium ≈ 11 counts
1 ppm Potassium ≈ 170 counts

During the survey, some difficulties were experienced in spectrum stability making it difficult to relate uranium values from adjacent flight lines. A levelling technique has been applied to the uranium measurements but a residual variation is still apparent between flight lines, and is particularly prominent in the U/Th map.

Airborne radiometric survey 1970
A.G. Darnley, R.L. Grasty
Exploration Geophysics Division
Geological Survey of Canada

Scale 1:50,000

0 1 2
MILES



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE

INDEX MAP

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75
OCT 1971
GEOLOGICAL SURVEY
OTTAWA

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