



AIRBORNE GAMMA-RAY SPECTROMETRIC MAP

Airborne gamma-ray spectrometry data collected in Nova Scotia during the summer of 1980, are presented:

- (1) as contour maps of the total count, the potassium, calcium, and thorium concentrations, and the thorium, uranium, and potassium ratios;
- (2) as shaded portions of the same radiometric parameters plotted on each inch of the flight lines.

The airborne measurements were made using a Eganwald spectrometer, with the following characteristics: detector crystal - NaI(Tl); detector diameter - 100 mm and 100 mm; detector flight level - 1000 ft; scan rate - 1000 ft/min; and the detector flight lines were plotted on each of the contour maps.

Measurements were reported directly from the 1.0-MeV gamma-ray peak using a 100-mm NaI(Tl) detector and a 100-mm NaI(Tl) detector. The data were processed using a computer program which calculates the total count rate, the potassium, calcium, and thorium concentrations, and the thorium, uranium, and potassium ratios. The error ranges used are as follows:

Total Count	0.41-2.81 %
Potassium	± 0.80
Calcium	± 1.00-1.10 %
Thorium	± 1.20-1.80 %

Uranium, thorium and potassium counts were measured over 2.5-second intervals and were corrected for decay. The data have been corrected for dead time, ambient temperature changes, background radiation, detector efficiency and detector air density. Corrections for the changing air density are described by G. G. Gault, 1972 "Airborne Gamma Spectrometry Data Processing", S.C.C. Report No. 10.

The values for the radiometric concentrations shown on the contour maps are "average surface concentrations", that is, an average of the area on the flight line for the concentration of each element and the radiometric concentration on shore on the contour maps are usually considerably lower than the concentration on the flight line. The contour maps are plotted on a grid in the vertical.

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The correction factors used are approximately those listed below:

Total count	1.00
1 cm	80 c.p.m.
1 gpm	100 c.p.m.
1 gpm 25'	7 c.p.m.

Total count measurements are presented as a ratio of radiometric concentration (c.p.m.) to background count rate (c.p.m.). The background count rate is the average of the background count rate over the entire flight line.

In order to produce the contour maps, data along the flight lines were plotted on a grid in the vertical. The contour maps were plotted on a grid in the vertical. The contour maps were plotted on a grid in the vertical.

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