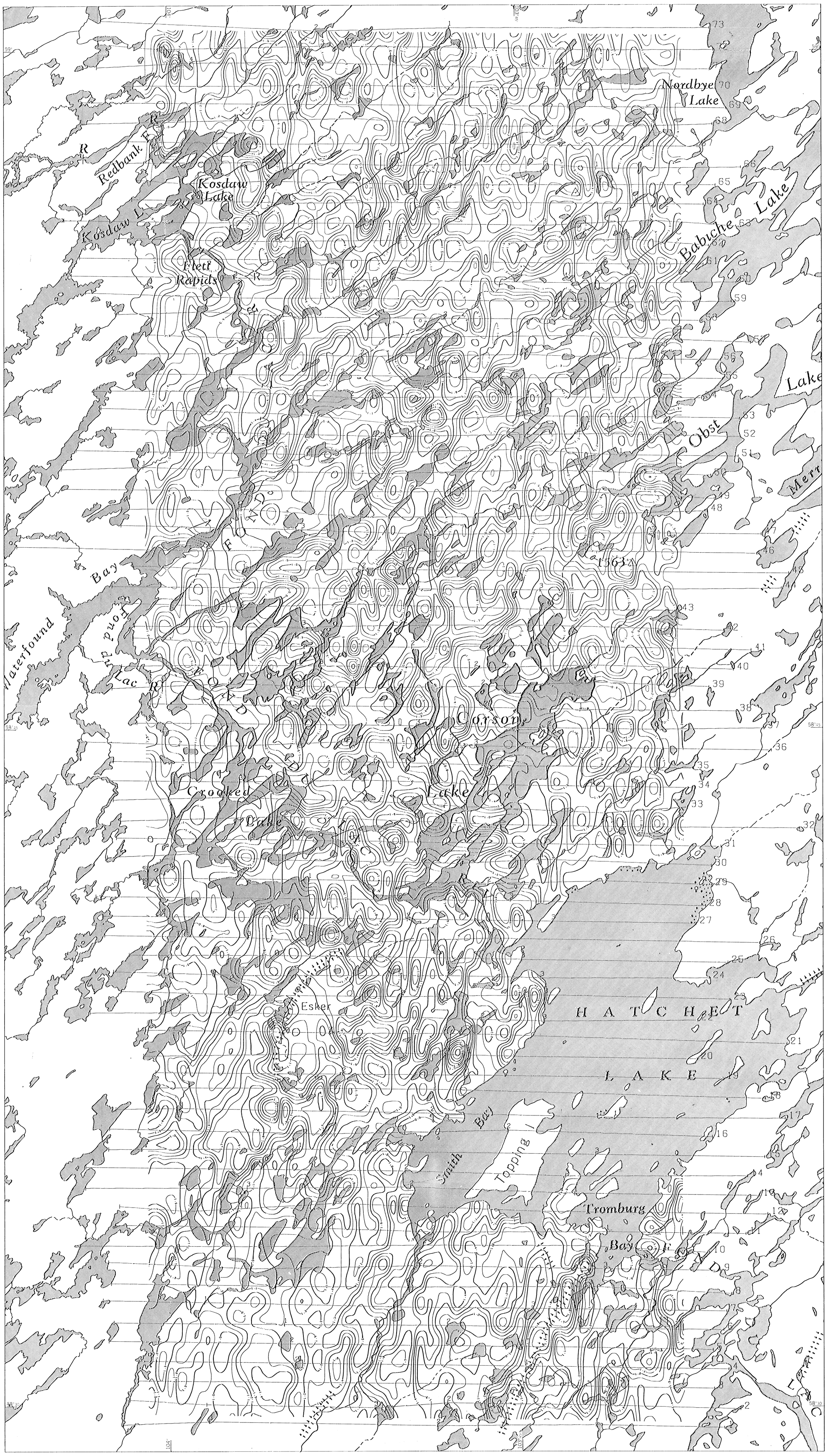

Airborne gamma-ray spectrometry data collected in Saskatchewan during the summer of 1974, are presented (1) as contour maps of the integral count; the potassium, uranium and thorium concentrations, and the U/Th, U/K and Th/K ratios; and (2) as stacked profiles of the seven radiometric parameters plotted for each of the 73 flight lines.

The airborne measurements were made using a four window 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. East-west flight lines were at 1/2 mile (approx. 0.8 km) line spacing, and the numbered flight lines are plotted on each of the contour maps.

Uranium, thorium and potassium counts were measured over 2.5-second intervals; integral counts over 0.5-second intervals. The data have been corrected for background, height variation and Compton scattering. The computer programs used to produce the contour maps and profiles are described by R.L. Grasty, 1972 "Airborne Gamma Spectrometry Data Processing Manual", GSC Open File No. 109. Values shown on the profiles represent counts per 0.5-seconds for the integral, and counts per 2.5-seconds for uranium, thorium and potassium. The maps are contoured in units of counts per 0.5-seconds for the integral, parts per million uranium and thorium, percent potassium, the concentration ratio for U/Th, and the concentration ratio x 10^2 for U/K and Th/K.

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 74-18, pp. 69-71).

In order to produce the contour maps of integral count and radioelement distributions, data along the flight lines were averaged over three 2.5-second intervals (approximately 0.5 km) and the effect of background count rates over the lakes were removed. Smoothing of the data for the ratio maps was accomplished by summing a minimum of 100 counts for both elements before calculating the value of the ratio.

This project was carried out by the Geological Survey of Canada under the terms of the Canada-Saskatchewan Agreement on Mineral Exploration and Development in Northern Saskatchewan.

GEOLOGICAL SURVEY OF CANADA

AIRBORNE RADIOACTIVITY MAP

HATCHET LAKE AREA

SASKATCHEWAN

Part of 64L

POTASSIUM%

Airborne Radioactivity Survey, 1974
K.A. Richardson
P.B. Holman
B.E. Elliott
Resource Geophysics & Geochemistry Division
Geological Survey of Canada

Base Map material supplied by Surveys and Mapping Branch

Cartography by Geological Survey of Canada

Scale 1:50,000

Kilometres 1 0 1 2 3 5 Kilometres

Miles 1 0 1 3 5 Miles

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