

An airborne geophysical survey of the Phelps Lake area, Saskatchewan, was flown by Sander Geophysics Limited (SGL) for the Geological Survey of Canada and Saskatchewan Energy and Mines. The purpose of the survey was to obtain gamma-ray spectrometric, aeromagnetic and VLF-EM data. The survey was flown between August 14 and September 7, 2001 using a Britten-Norman BN2B-21 aircraft flying 120 m above the terrain at a mean speed of 220 km/h.

The 1000 m spaced, northwest-southeast oriented survey lines and orthogonal 1000 m spaced control lines were planned using the SDCPro system. In-flight positional data were recorded using an Omnistar real-time differential GPS system. GPS ground station data were combined with airborne GPS data to produce differentially corrected positional data with an accuracy of 1.0 m.

Potassium is measured directly from the 1460 keV gamma-ray photons emitted by <sup>40</sup>K. Uranium and thorium must be measured indirectly from gamma-ray photons emitted by daughter products (<sup>214</sup>Pb for uranium and <sup>214</sup>Pb for thorium). Although thorium and uranium are far down their respective decay chains, they are assumed to be in equilibrium with their parents; thus gamma-ray spectrometric measurements of uranium and thorium are referred to as equivalent uranium (eU) and equivalent thorium (eTh).

The airborne gamma-ray measurements were made with an Exploranium GR20 gamma-ray spectrometer using fourteen 102 x 102 x 4.06 mm NaI(Tl) crystals. The main detector array consisted of twelve crystals (total volume 50.4 litres). Two crystals (total volume 8.4 litres), shielded from the ground by the main array, were used to detect radon decay products. The GR20 constantly monitored the natural potassium peak for each crystal, using a Gaussian least squares algorithm to adjust the gain for individual crystals.

LEGEND / LÉGENDE

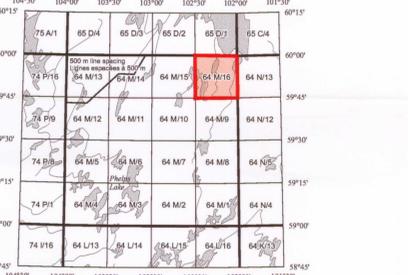
Wetland / Marais	.....
Lake / Lac, intermittent	.....
Watercourse / Cours d'eau	.....
Flooded area / Région inondée	.....
Esker / Esker	.....
Elevation contour / Courbes d'élévation	.....
Depression contour / Courbes de dépression	.....
Flight Line / Ligne de vol	.....

Digital cartographic base information supplied by Information Services Corporation of Saskatchewan. Elevation contour interval 10 metres.

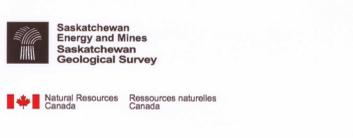
L'information cartographique numérique a été fournie par Information Services Corporation of Saskatchewan. Équidistance des courbes d'élévation 10 mètres.

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Carson J.M., Holman P.B., Shives R.B.K., Ford K.L., Harper C.T., Slimmon W., 2001: Magnetic Anomaly Map (Residual Total Field), Patterson Lake, Saskatchewan, NTS 64M/16, Geological Survey of Canada, Open File 3951\_159, Scale 1:50 000

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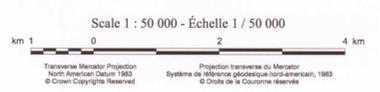
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MAGNETIC ANOMALY MAP (RESIDUAL TOTAL FIELD)

CARTE DES ANOMALIES MAGNÉTIQUES (CHAMP RÉSIDUEL TOTAL)

PATTERSON LAKE  
SASKATCHEWAN  
NTS / SNRC 64M/16



Open File  
Dossier Public  
**3951\_159**  
Geological Survey of Canada  
Commission géologique du Canada  
Ottawa  
2001

SEM Open File 2001-2  
Map 159 of 160

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