

Gamma-ray Spectrometric Data

The alpha/gamma spectrometric measurements were made with an Epsilon gamma G820 Gamma-ray spectrometer (EG&G, Madison, WI) with a NaI(Tl) crystal. The crystals, which consisted of twelve crystals (total volume 50.4 liters). Two crystals (total volume 4.4 liters) were shielded by the main crystal, were used to detect variations in background radiation rates. The remaining ten crystals were used as detectors of the gamma-ray spectrum. The gamma-ray spectrum was processed using a Gaussian peak fitting program. Potassium is measured directly from the 460 keV gamma-ray photons emitted by ^{40}K whereas uranium and thorium are measured indirectly from gamma-ray photons emitted by ^{234}Th and $^{234\text{m}}\text{Pa}$, respectively. The gamma-ray photons emitted by ^{234}Th and $^{234\text{m}}\text{Pa}$ are far from 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 and equivalent thorium, i.e., u and e Th. The energy windows used

Gamma-ray spectra were recorded at 240-second intervals at a planned terrain clearance of 100 m. The spectra were collected in the 2000–2800 keV energy range. The data analysis was carried out on the full spectrum 256 channel data to reduce statistical noise in the windowed data. During processing, the spectra were energy calibrated, and counts were converted to disintegrations per second (DPS). The spectra were then corrected for background and cosmic-ray activity. From cosmic radiation, the radioactivity of the aircraft and atmospheric radon decay products were subtracted. The spectra were then corrected for the effect of the aircraft activity. Corrections for deviations of altitude from the planned terrain clearance and for variation of temperature and pressure were made prior to conversion to ground concentrations of radon, radon progeny, and thorium and uranium. Using factors determined from a calibration of the instrument, the ground concentrations were then calculated.

Thorium 6.1 cps/ppm
Corrected data were filtered and interpolated to a 100m grid for the 1,250,000 scale maps and a 50m grid for the 1,500,000 scale maps. The results of an airborne gamma-ray spectrometer survey represent the average surface concentrations that are influenced by varying amounts of clutrop, overburden, vegetation cover, soil moisture and surface water. As a result the measured concentrations are usually lower than the actual bedrock concentration. The total air absorbed dose rate in nanograys per hour was produced from measured count rates between 400 and 2810 keV.

Mayaguez Data
Cessna Caravan

The Cessna 441 aircraft was equipped with a standard C-250 deslurp vapour ingestion sensor mounted in a sling to the rear of the aircraft. The system recorded readings every 0.1 seconds with a noise level of less than 0.01 mT. Magnetic interferences caused by aircraft manoeuvres were compensated using a FASDAS Magnetic compensator. Diurnal variations were recorded using a Fugro CF-1 deslurp vapour magnetometer.

differences in the

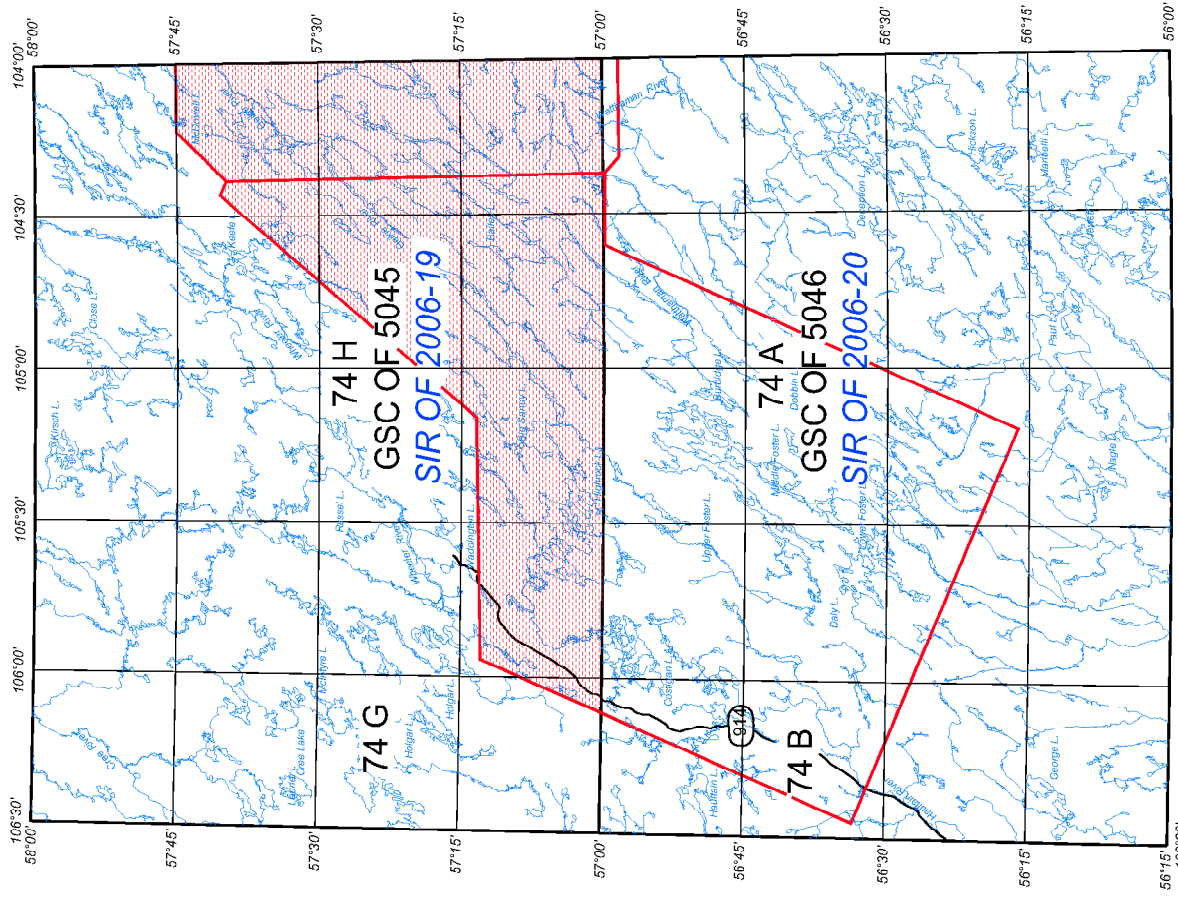
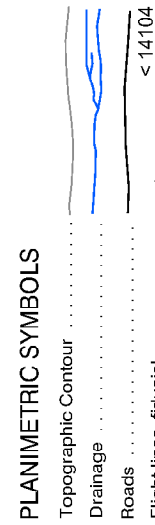
and removed using a fixed date (2005/08/31) and an altitude of 670m for each data point. The corrected magnetic delta was interpolated to a 100m grid using a minimum curvature algorithm. The first vertical derivative grid was calculated from the corrected total magnetic intensity grid using a FFT based frequency domain filtering algorithm.

proceeds in 2007

planned using Fugro Airborne Surveys Smooth Drape software. Positional data were recorded using a Novatel Propak NR80101. GPS ground station data were combined with airborne GPS data to produce differentially corrected positional data with an accuracy of 2 to 5 m.

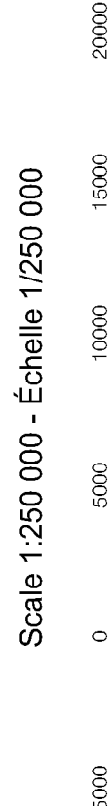
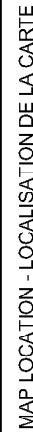
Data Presentation

Colour levels and contours were calculated for each grid and combined with map around information to create a postscript plot files, which were plotted using Eucris's HP DesignJet 600C plotters.



INTERNATIONAL TOPOGRAPHICAL SYSTEM REFERENCE AND GEOPHYSICAL MAP INDEX

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2006 : Geophysical Series - NTS 74H - Gellie River, Saskatchewan;
Geological Survey of Canada, Open File 5045.
Saskatchewan Industry and Resources, Open File 2006-19,
scale 1:250 000.



Universal Transverse Mercator Projection
North American Datum 1983
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