

AEROMAGNETIC GRADIOMETER SURVEYS IN SASKATCHEWAN

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In 1977 three small areas were surveyed in Saskatchewan over the south-eastern fringe of the Athabasca basin and a larger area in northern Manitoba along the extension of the Wollaston Lake Fold belt with the G.S.C. airborne vertical gradiometer system. These surveys were flown with a 300 metre flight line spacing and a mean terrain clearance of 150 metres. The resultant survey data provide maps with more detail and better resolution of individual anomalies than formerly possible with the standard aeromagnetic surveys. The greater resolution of the gradiometer system also provides information over areas underlain by rocks with small magnetic contrast and low magnetic susceptibilities. The vertical gradient maps therefore contain more information which can be related directly to underlying lithology and structure. The search for uranium mineralization in Saskatchewan is made more difficult by the presence of extensive glacial overburden and the overlying Athabasca Formation. The aeromagnetic technique is not directly affected by either the glacial overburden or Athabasca Formation. Therefore the vertical gradient maps of the areas surveyed in Saskatchewan provide more detailed information on the magnetic basement than was previously available. This fact allows a more detailed interpretation of the lithologies and structures present in these areas and in any exploration program the quality of the geological control available has a direct influence on the chances of understanding the factors controlling mineralization. This in turn has a direct effect on the chances of finding an orebody.