New Techniques in Interpretation and Integration of HRAM data for Domestic and International Exploration

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Recent improvement in the collection and processing of high resolution aeromagnetic (HRAM) data provides, for the first time, information on the geometry and spatial distribution of faults and fracture systems of the sedimentary section. The magnetic data are presented as a series of color or gray-scale images. These images can be merged and correlated with different satellite imagery such as Landsat (TM), and SPOT, as well as with the newly available RADARSAT data.

A series of examples from the North Slope and the Lower Cook Inlet of Alaska, the Lewis Trough of North West Australia, the Canadian Foothills, and the Western Canada Basin are used to illustrate the exploration applications of these two relatively new reconnaissance exploration tools. In the fold belt regions the integration of these tools can improve the mapping of complex structural features, detect the presence of cross trending faults and related migration fairways, and assist in the development of balanced cross sections.

In the less deformed foreland regions this integrated approach leads to the recognition of buried and obscured structures that are often too subtle to detect with conventional exploration tools. The recognition of these features can lead to the development of new exploration concepts as well as improve the inventory of existing prospects of these areas.

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