faults and geometry will be a valuable asset for further mineral exploration in the Baie Verte Peninsula.

3D geophysical and geologic modeling of the Betts Cove Ophiolite, Newfoundland

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The Betts Cove Ophiolite Complex and overlying Snooks Arm Group of the Baie Verte Peninsula, Newfoundland, are associated with a high amplitude magnetic anomalies and accompanying extensive topographic relief. This study aims to develop a comprehensive three dimensional geologic model for the Betts Cove Ophiolite complex. Physical properties including magnetics, gravity and surface structural trends are integrated in order to interpret unresolved parameters regarding the arrangement of ophiolitic units in relation to the surrounding cover sequences.

The Betts Cove Ophiolite is an assemblage of ocean floor volcanic rocks forming a part of the Notre Dame Subzone of the Dunnage Zone of the Newfoundland Appalachians. Emplacement of the ophiolite sequences are believed to have occurred in the early Paleozoic during closure of a marginal basin associated with the Iapetus Ocean. Bonitic affiliations revealed in petrological and chemical analyses suggest the ophiolite formed in a fore-arc spreading environment. Although extensively mapped, much of this complex is hidden by vegetative cover and remains to be fully defined. Integration of detailed topographic information with GPS controlled field mapping will be used to better define the geometry of the complex.

A large dataset of surface structural information for the Betts Cove Complex will provide the geologic constraint missing from previous inversion models of the ophiolite. High resolution magnetic data incorporating horizontal gradient measurements combined with unit specific susceptibility values are used in order to better discriminate between magnetic sources. The inclusion of remnant magnetization information acquired from field samples accounts for the trends resulting from the effect of previous magnetic fields. Differential GPS measurements together with radar altimeter data recorded simultaneously with the aeromagnetic survey provide a new high resolution DEM of the Betts Cove area. Calibration of this DEM is provided by 20 cm resolution ground based GPS data which was collected as part of a regional gravity survey. A model of best statistical fit is then generated as an end result. An accurate 3D model of the Betts Cove area highlighting new

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