

ECSOOT Lithoprobe Line: some insights from offshore gravity and magnetic surveys

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The objective of the Lithoprobe deep seismic lines is to describe the crustal geology as a three-dimensional extension of surface bedrock geology. This connection is difficult because it is generally not known how the complexities of surface bedrock geology propagate in depth. The task becomes even more difficult in the offshore since the bedrock geology information is often minimal or non-existent. It is, therefore, important to use the geological information from the adjacent land mass and to project and extend trends to the offshore.

An important aid in projecting the geological trends from land to offshore are the maps of gravity and magnetic anomalies. This becomes particularly useful in the areas which are

well mapped and where susceptibility and density contrasts between different rock types produce significant and easily recognizable anomalies.

Reconnaissance gravity and magnetic surveys have been completed over all of the Labrador Shelf. The survey line density varies between 5 and 20 km and thus the data will provide information on general trends only. The one exception is the area of Saglek Bank (between latitudes 58° and 59° north) where in 1976 a more detailed survey was conducted with line spacing of less than 2 km. These data have been combined with the new compilation of the East Coast Aeromagnetic data and the resulting maps will be discussed in the context of the offshore extension of land geology.