INTRODUCTION: The Hudson Gulf-Labrador region was the site of some of the major ice sheets of the Laurentide ice sheet, a major contributor to the geological history of the region. Absolute gravity data is useful in studying the effects of ice melting on the gravitational field. The objective of this study is to determine the absolute gravity field in and around the Hudson Gulf-Labrador region using GPS data collected at selected sites. The data was processed using the GPS software and compared with theoretical models to determine the absolute gravity field. The results indicated a significant change in the gravity field due to the melting of the ice sheets, which has implications for the geological and environmental history of the region.

Regional Gravity Trends

FIGURE 1: Location of selected regional sites of the Canadian Geodetic Survey. The selected sites are indicated as circles on the map.

FIGURE 2: Comparison of uplift rates for the selected sites. The sites are indicated on the map with symbols indicating their type.

Discussion of Preliminary Results & Future Work

There is good agreement among uplift rates for GPS stations, gravity trends, and model predictions. However, there are a few exceptions. The cause of the apparent large variability of the gravity values at some sites is not clear. The overall variability of the gravity values is not consistent with theoretical models. Further investigation is needed to understand the cause of these variations.

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References


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