

acquired using a modern gravimeter and the rapid-static GPS method for positioning.

The Cocagne Subbasin, thought to be a graben-like structure, produces a well-defined 10–15 mGal gravity low in the southern part of the survey area. The gravity low is bounded to the south by a relatively broad gravity high associated with uplifted Lower Carboniferous sedimentary rocks and crystalline basement rocks of the Indian Mountain Deformed Zone. In contrast, the northern boundary of the gravity low is well defined by abrupt changes in both gravity and vertical gravity gradient, suggesting that the basin is asymmetric in cross-section. It is proposed that this linear northeast-trending anomaly marks the position of the Belleisle Fault and the northern boundary of the Cocagne Subbasin beneath Upper Carboniferous cover. The Belleisle Fault was previously extrapolated through this area along a pronounced magnetic anomaly that is now recognized to bisect the Cocagne Subbasin gravity low and to be co-linear with the trajectory of a subtle anomaly in the vertical gravity gradient. The inferred fault along that trajectory is renamed the Cormierville Fault, thus allowing the Belleisle Fault to retain its originally defined significance as the southern margin of the New Brunswick Platform. Simple 2D forward modeling of two gravity profiles suggests that the Cocagne Subbasin within the survey area is 3 to 4 km deep north of the Cormierville Fault, and 2 to 3 km deep south of it, though these estimates were made without the benefit of either borehole control or seismic reflection data. The subbasin appears to deepen towards the southwest and thin towards the northeast, which may explain why previous investigators did not identify the subbasin or its bounding faults in marine seismic reflection data from the Northumberland Strait.

Delineation of the Cocagne Subbasin, eastern New Brunswick based on new ground gravity data

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A regional gravity survey was undertaken in the fall of 2009 over a portion of the late Paleozoic Maritimes Basin in eastern New Brunswick that includes the eastern end of the Late Devonian to Early Carboniferous Cocagne Subbasin and adjacent areas of the New Brunswick Platform to the north. The survey area measures approximately 54 km along the Northumberland coast between Shediac and Richibucto, and extended 11 to 23 km inland. A total of 708 gravity stations with a nominal (though non-uniform) spacing of approximately 1 km were