

## Geophysical modelling of salt masses and basement structures in the Moncton and Cumberland Basins

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Salt masses are usually characterized by distinctive gravity lows on Bouguer anomaly maps due to their negative density contrasts with surrounding rocks. Despite this rather unique feature, regional gravity variations due to large scale, deep-seated geologic structures as well as density effects caused by intra-basement lithologic variation tend to distort and obscure gravity signatures of salt masses and other smaller structural features. For this reason, it is necessary to remove these regional effects from observed gravity values in order to isolate and more clearly interpret the physical properties of the structural features in which we are most interested.

Several negative gravity anomalies, interpreted to be buried evaporites have been identified throughout parts of the Moncton and Cumberland Basins. Although some of these anomalies are no doubt related to Albert salt masses, gravity modelling studies were completed only for those anomalies interpreted to be associated with Windsor Group evaporites which locally contain significant potash deposits. These included anomalies at Smithtown, Salina, Cassidy Lake, Millstream, Plumweseep, Penobsquis, Ana-

gance, Portage Vale, Five Points, and Pointe de Butte. Gravity coverage in these areas is considered adequate for the construction of two dimensional models.

Model studies indicate that most Windsor salt masses form elongate, semi-diapiric to lensoidal structures. Most appear to be influenced one way or another by faulting and/or topographic irregularities in the basinal floor.

Near Portage Vale, two distinct salt masses indicate a bifurcating of the "Windsor" depositional basin either by faulting or by the presence of an intervening basement high resulting in two separate, possibly interconnected basins. The regional gravity field in this area suggests a major upthrust block which starts just northeast of Portage Vale and continues through Middlesex to Moncton.

Basal Windsor strata from all constructed models from Plumweseep to Portage Vale indicate a regional paleoslope of approximately 5 degrees to the northeast. This revelation may be of value in estimating the thickness of post-Windsor sediments in the eastern part of the Moncton Basin.