

GIS-based metallogenic studies in the Carboniferous Deer Lake basin, Newfoundland

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Gravity and magnetic residuals suggest that the basement to the basin is block faulted. The basin can be subdivided into eight distinct fault-bounded blocks based on the character of the potential field anomaly maps. The combined potential field and geochemical data indicate that some forms of mineralization within the basin occur near residual gravity and magnetic highs, whereas other forms are correlated with high

magnetic gradients. The trends indicate that metallic mineralization and hydrocarbons are associated with the underlying basement topography and that the faults formed structural conduits along which hydrothermal fluids migrated. The association of bitumen with mineralizing fluids appears to have resulted from their utilization of the same regional fault systems for migration.