



**GEOLOGICAL SURVEY OF CANADA
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Mackenzie Plain and parts of Peel Plain,
Northwest Territories**

T. Hadlari, D. Midwinter, B.C. MacLean, K.M. Fallas, and J. Dixon

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doi:10.4095/293112

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Recommended citation

Hadlari, T., Midwinter, D., MacLean, B.C., Fallas, K.M., and Dixon, J., 2013. Formation tops and isopach maps of Cretaceous strata of Mackenzie Plain and parts of Peel Plain, Northwest Territories; Geological Survey of Canada, Open File 7326, 4 p. + 6 PDF files. doi:10.4095/293112

Publications in this series have not been edited; they are released as submitted by the author.

INTRODUCTION

Formation tops for Cretaceous strata are updated based on new results from Mackenzie Plain and parts of Peel Plain, Northwest Territories (e.g., Thomson et al., 2011; Fallas et al., 2012). The formation tops herein are the result of multidisciplinary and integrated outcrop-subsurface studies.

METHODOLOGY

Stratigraphic framework follows summarization by Dixon (1997) for Martin House, Arctic Red, Mahoney Lake, Slater River, Trevor, Little Bear, East Fork, and Summit Creek formations. For parts of western Mackenzie Plain and Peel Plain, Hadlari et al. (2009) subdivided Cretaceous mudstone that was previously assigned a Lower Cretaceous age into Lower Cretaceous Arctic Red Formation and Upper Cretaceous Slater River Formation. Further modifications are based on field observations and interpretations of seismic data.

Development of isopach maps started with zero edges defined by new bedrock maps (Fallas et al., 2012) that updated a compilation by Wheeler et al. (1996). Formation tops of Table 1 were used to determine stratigraphic thickness within those boundaries.

RESULTS

Formation tops for wells in the study area are given in Table 1. Included in the formation list are entries for sub-Slater River unconformity and sub-Cretaceous unconformity. Figures 1-5 show isopach maps of key stratigraphic intervals.

Figure 1 is an isopach map for undivided Lower Cretaceous strata including Martin House, Arctic Red, and Mahoney Lake formations that also shows structures indicated by Fallas et al. (2012). Figure 2 shows isopach lines for Slater River Formation. Figure 3 is an isopach map of Little Bear Formation. Figure 4 shows isopach lines of East Fork Formation and Figure 5 shows Summit Creek Formation.

ACKNOWLEDGEMENTS

The authors would like to thank R.B. MacNaughton for conscientious project leadership. This work is a product of the GEM program and the EGM-03 project specifically. The efforts by Y. Lemieux, L.P. Gal, D. Thomson, C.J. Schroder-Adams, L.J. Pyle, and A.L. Jones that supported and lead to this work are appreciated. Please contact the first author for a complete Geoscout user database file of formation tops. GIS shapefiles of the isopach maps are also available.

REFERENCES

Dixon, J., 1997. Cretaceous and Tertiary strata of the northern Interior Plains: subsurface formation tops and core descriptions; Geological Survey of Canada, Open File 3443, 27 p.

Fallas, K.M., MacLean, B.C., MacNaughton, R.B., and Hadlari, T., 2012. New bedrock map compilations for the central Mackenzie corridor, Northwest Territories; Geological Survey of Canada, Scientific Presentation 11, poster. doi:10.4095/289633

Hadlari, T., Thomson, D., Schroder-Adams, C.J., Lemieux, Y., MacLean, B.C., and Gal, L.P., 2009. Chapter 9 – Cretaceous strata and Basal Cretaceous Sandstone Play; in Regional Geoscience Studies and Petroleum Potential, Peel Plateau and Plain: Project Volume, edited by L.J. Pyle and A.L. Jones, Northwest Territories Geoscience Office, NWT Open File 2009-02.

Thomson, D., Schroder-Adams, C.J., Hadlari, T., Dix, G., and Davis, W.J., 2011. Albian to Turonian stratigraphy and paleoenvironmental history of the northern Western Interior Sea in the Peel Plateau Region, Northwest Territories, Canada. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 48, p. 515-541.

Wheeler, J.O., Hoffman, P.F., Card, K.D., Davidson, A., Sandford, B.V., Okulitch, A.V., and Roest, W.R. 1996. Geological map of Canada. Geological Survey of Canada, Map 1860A, scale 1 : 5 000 000

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