

Tectonic origin of Pink Mountain Anticline, northeastern British Columbia: results from seismic sections and isopach maps

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Pink Mountain Anticline is located at the Cordilleran thrust front (57°N, 123°W). Why this structure formed in front of the regional Foothills belt is not apparent from geological mapping alone. The tectonic origin of Pink Mountain Anticline could only be determined through the integration and interpretation of seismic and well log data.

The structural origin of the Pink Mountain Anticline appears to be related to a topographic high in the Carboniferous and older strata in the subsurface just east of Pink Mountain. Isopach maps of the Carboniferous Kiskatinaw and Golata formations show a possible western continuation of the Beaton High at the eastern border of the Trutch (94G) and Halfway River (94B) map areas. Also, the general north-northwest trend of the major anticline is deflected to nearly due north near the middle of Pink Mountain, coincident with a major thickness increase in the Kiskatinaw and Golata formations to the west in the subsurface. The thicknesses of units on the isopach maps are corrected for the effects of thrust repeats and steeply dipping beds found in some wells.

Vlada Avramovic reprocessed seismic sections north and south of the Pink Mountain Anticline using pre-stack time and pre-stack depth migration methods. From these reprocessed seismic sections, the subsurface topographic high appears to be the result of north-northwest trending normal faults possibly related to an episode of Carboniferous extension documented in the Peace River area (Figure 1). These observations suggest that the western edge of the subsurface high concentrated stresses during Laramide deformation, resulting in the formation of the Pink Mountain Anticline just west of the Carboniferous high and east of the regional physiographic foothills belt. The deflection and offset of the Pink Mountain Anticline at Halfway River could be the result of minor east-west normal faults related to the Carboniferous extension.

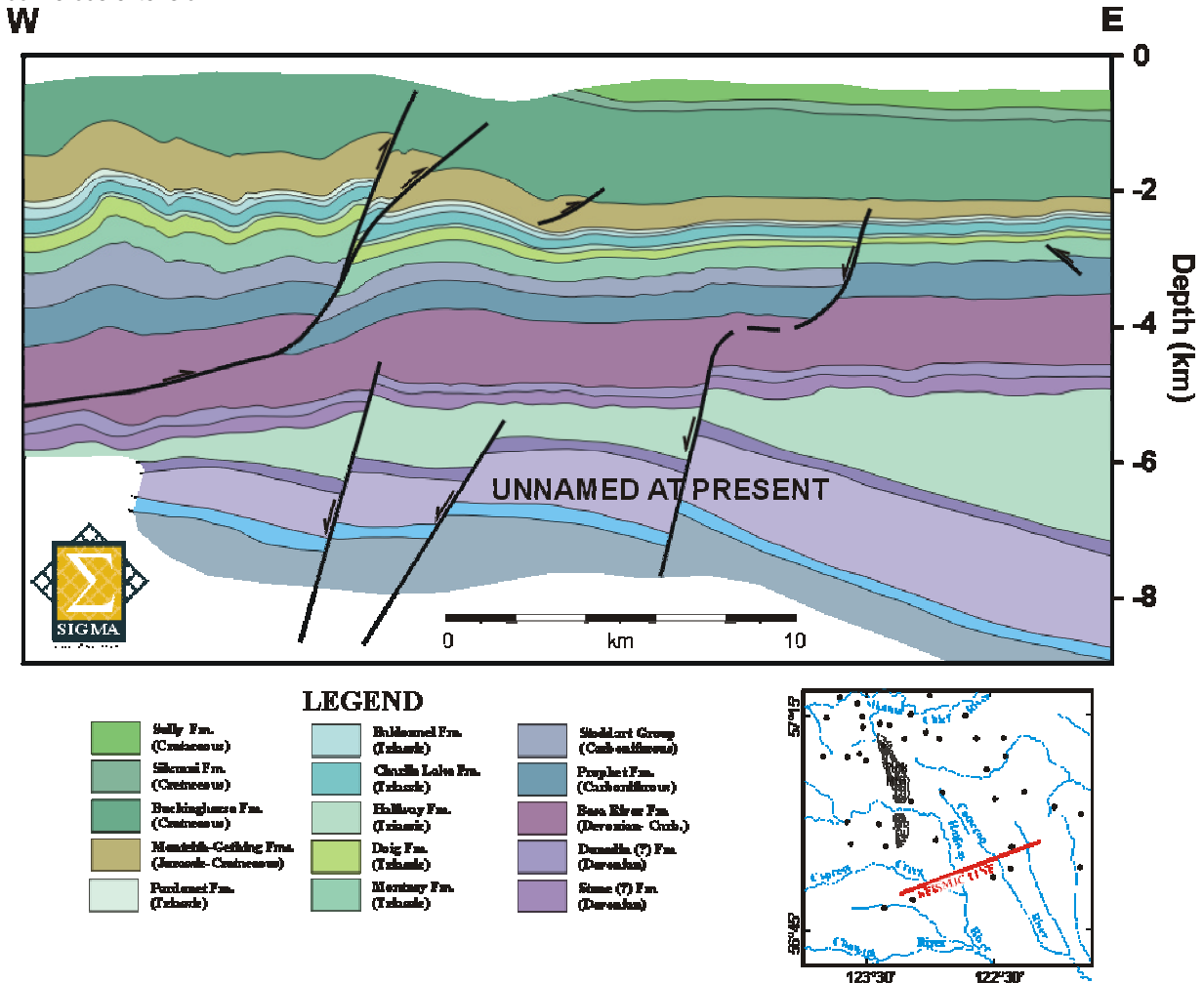


Figure 1. Line drawing interpretation by Hinds (2001), (seismic section courtesy of SIGMA Explorations Inc.).

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