

Dolomite from Western Canada: Some Thoughts on the Origin

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Historically, interpretation of the origin of dolomite in geologic units world-wide has been controversial. The origin of dolomite from western Canada is no exception. In particular the origin of dolomite in Devonian units that hold large hydrocarbon reserves has been debated for years. There are several fundamental questions related to the physical, chemical, hydrologic and temporal parameters under which dolomite forms. One would like to determine the answers to these questions to better understand the origin of dolomite bodies. Numerous researchers have applied variety of analytical techniques to dolomite from western Canada over the last 20 years. This has resulted in a significant database from which the origin of the dolomite can be interpreted. However, there is still no clear consensus among researchers as to the origin of the dolomite.

In light of the increased database available for interpretation over the last two decades, reassessment of the possible mechanism(s) for the origin of dolomite in western Canada seems reasonable. However, even in light of these new data I find that my thoughts on the origin of dolomite are much the same as they were twenty years ago. As Kathy Aulstead and I proposed in 1985, it appears the bulk of the dolomite is of hydrothermal origin. This dolomite formed at relatively shallow burial depth, during early diagenesis. Dolomite formed from hypersaline fluids that had interacted with the basement and migrated into limestone units along deep-seated structural elements.