Current Views on the Geology of Nova Scotia's Coal Basins

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Nova Scotia's coal basins share common roots in the history of the Maritimes Basin, and are a study in contrast with basins of western Canada or even their contemporaries in the Appalachians of the eastern United States. That said, the coal basins of Nova Scotia also have geological characteristics that render them distinct from one another. Both of these statements are grounded in the fact that the coalfields of Nova Scotia and adjacent areas of Maritime Canada formed within active depocentres in a tectonically active area of the assembling Pangean landmass. Although the origins of the regional Maritimes Basin are recorded in the Acadian Orogeny, the intercontinental-scale event, marked by the Mississippian-Pennsylvanian unconformity, sets the stage for subsequent development of coal measures diachronously within the various Maritime Basin depocentres. Although climate and terrestrial-marine interactions influenced the nature of sedimentary systems and the peatlands that gave rise to the coal seams of today, these effects are overprinted by tectonic history. Nonetheless, climate, water chemistry and basinal processes contribute significantly to the physical character and composition of individual coal seams in Nova Scotia. Establishing linkages between structural representation today and their tectonic origins remains a challenge, but basin modelling has made significant inroads in this area. Recently acquired seismic data from the Cumberland Basin provide a compelling example of how long-standing models of basin development can be radically altered through acquisition of new geological data, particularly when these data provide insights into the tectonic history of the basins.

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