

Newfoundland to Cape Breton Island: terrane correlations

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The geology of Cape Breton Island is interpreted as a continuation of the geology of Newfoundland across the Cabot Strait/Laurentian Channel. The Mira terrane of southeastern Cape Breton Island is composed of late Precambrian and Cambrian rocks like those of the "type" Avalon terrane of eastern Newfoundland. Gneiss, anorthosite, and ca. 1 Ga syenites of the Blair River Complex in northwestern Cape Breton Island are similar to units in the Indian Head and Steel Mountain terranes in the Humber Zone of western Newfoundland. Isotopic data from the Blair River Complex indicate North American (Laurentian) affinity.

The area between the Blair River Complex and the Mira terrane, like the corresponding area in Newfoundland, is less

readily assigned to terranes or zones than was previously assumed when field relations, ages, and petrochemistry were only broadly constrained. Although some isotopic data suggest crustal similarity at depth with the Mira (Avalon) terrane, contrasts in igneous and metamorphic history make it difficult to assign the area to a single terrane, or even to a composite Avalon terrane. In contrast to Newfoundland, direct remnants of Iapetus Ocean-floor do not appear to be preserved in Cape Breton Island, and the "Iapetus suture" is best described as cryptic. The margins of the Blair River Complex, therefore, now mark the southeasternmost extent of Laurentia in the northern Appalachian Orogen.