

tuff, welded tuff and lapilli tuff. The deposition of the Cape St. John Group occurred in a subaerial continental setting and followed the obduction of ophiolite on the Laurentian margin and eruption of an ophiolite cover sequence (e.g. Snooks Arm Group). The presence of welded ash flow tuffs, locally coarse pyroclastic breccias and ring dyke complexes in the nearby Burlington granodiorite, suggest that felsic pyroclastic volcanism may be related to caldera collapse of a central volcanic edifice(s). Basaltic rocks have high TiO₂ contents (~2 wt. %) consistent with a continental tholeiitic volcanic signature. Felsic rocks appear to be overrepresented with respect to the original basaltic magma in terms of a fractional crystallization model and there is a gap in distribution of the rocks with respect to SiO₂ content at intermediate compositions. These could be the result of either a crustal density filtering process or partial melting of the underlying continental margin crust.

The Cape St. John Group sustained complex deformation during the Salinic and younger orogenic events. In the south, the volcanic rocks were metamorphosed to greenschist facies and contain a predominant east-striking foliation related to open, upright folds. To the north the sequence is at amphibolite metamorphic grade and overturned into large recumbent folds. Later north-trending, upright cross folds affect the Cape St. John Group and diminish in wavelength and amplitude westward toward the interior of the Baie Verte Peninsula. The study of the structural history of the Silurian Cape St. John Group provides important timing constraints on regional deformation on Baie Verte Peninsula. Similar recumbent folding can be observed in the polydeformed Ordovician rocks of the Pacquet Harbour Group and Cambrian to Ordovician rocks of the Ming's Bight Group to the west.

Tectonostratigraphy and geological history of the Cape St. John Group, Baie Verte Peninsula, Newfoundland

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The Cape Saint John Group is a polydeformed Silurian volcanic sequence located on the Baie Verte Peninsula in the Newfoundland Appalachians. The Cape St. John Group rests with angular unconformity on Ordovician volcanic rocks of the Snooks Arm Group (Dunnage zone) and is intruded by the ca. 430 Ma Cape Brule porphyry. The Cape St. John Group comprises red weathering conglomerate, sandstone and siltstone near its base and these are overlain by massive amygdaloidal basalt flows. These are in turn overlain by intermediate lapilli tuffs and a thick sequence of dacitic to rhyolitic pyroclastic rocks including minor lava flows and tuff breccia, and abundant