

**Metavolcanic and Granitoid Rocks of Southeastern Cape Breton Island and Southern
New Brunswick: A Comparison**

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Metavolcanic and granitoid rocks of southeastern Cape Breton Island and the Caledonian Highlands in southern New Brunswick are generally accepted to be Late Precambrian in age and typical of the Avalon Composite Terrane of the northern Appalachian Orogen. However, detailed integrated field and petrological studies in these two areas have been lacking, so quantitative comparison could not be made. As a result of two

major projects now in progress in southeastern Cape Breton Island and in the central and eastern Caledonian Highlands of New Brunswick, both including field mapping (scale 1:25,000), petrological studies and dating, preliminary comparisons can be made.

Volcanic rocks in both areas include abundant flows and both pyroclastic and epiclastic units. Metamorphic grade is

typically subgreenschist to greenschist, and generally somewhat lower in Cape Breton Island than in New Brunswick. Epiclastic and arkosic sedimentary rocks are much more abundant in New Brunswick than in Cape Breton Island, and they appear to lie below many of the volcanic rocks in the stratigraphic succession. Chemical data show that the volcanic rocks in both areas formed in a volcanic-arc environment on a continental margin. The volcanic rocks in New Brunswick are dominantly tholeiitic whereas those in southeastern Cape Breton Island appear to

change from tholeiitic in the southeast to calc-alkalic in the northwest.

Granitoid rocks in both areas form typical "I-type" calc-alkalic suites ranging in lithology from diorite to granite. In general they do not appear to be co-genetic with the volcanic host rocks. Most of the granitoid units give radiometric ages of about 570-600 Ma. Scattered gabbroic intrusions occur in both areas and are probably younger than the granitoid rocks.