

**Petrology and tectonic implications of the Silurian Sarach Brook Metamorphic suite,
southern Cape Breton Highlands, Nova Scotia**

K.J. Lister and S.M. Barr

Department of Geology, Acadia University, Wolfville, Nova Scotia B0P 1X0, Canada

The Sarach Brook Metamorphic suite is located in the Aspy terrane of Cape Breton Island, and consists of metavolcanic and metasedimentary rocks of Silurian age. This study focuses on the eastern part of the Sarach Brook Metamorphic suite, and is based on field mapping and petrographic examination of 52 samples, as well as whole-rock geochemical analyses of 20 representative samples and mineral analyses in 6 samples. The metavolcanic rocks range in composition from basaltic to rhyolitic and metasedimentary rocks are dominantly metasilstone. Relict bedding (S_0) and foliation (S_1) vary from easterly trending in the south to northerly trending in the north, with mainly steep dips. The unit has been deformed along its western edge by the Southern Highlands Shear Zone.

Mineral assemblages in the Sarach Brook Metamorphic suite are dominated by plagioclase (An_3 to An_{20}), hornblende, epidote, chlorite, biotite, and rarely garnet, and indicate greenschist to lower amphibolite facies regional metamorphism. Locally, contact metamorphism has produced hornfels containing staurolite, andalusite and fibrolite. Geochemical data indicate that the volcanic rocks in the Sarach Brook Metamorphic suite are tholeiitic, and a back-arc tectonic setting is postulated. The Sarach Brook Metamorphic suite is correlated with other Ordovician-Silurian units in the Aspy terrane, including the Taylors Barren Pluton, the MacRae Brook Formation, and the Money Point Group.