

Petrochemistry and tectonic setting of volcanic rocks in the Antinouri Lake Brook area, northern New Brunswick

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The Antinouri Lake Brook area is located in the Tobique Volcanic Belt in northern New Brunswick. The area is underlain by a sequence of marine siltstones, conglomerates and limestones, overlain by mafic and felsic volcanic rocks of Silurian and Devonian age. Subvolcanic dykes and sills of basaltic composition are also common in the area. Although petrochemistry of volcanic rocks elsewhere in the Tobique Volcanic Belt has been documented, volcanic rocks in the Antinouri Lake Brook area were not included in these earlier studies.

Mafic volcanic rocks of the Antinouri Lake Brook area are generally massive and amygdaloidal. They range in colour from greenish black to maroon. The groundmass is typically pilotaxitic, consisting of plagioclase, clinopyroxene, quartz, chlorite and calcite. Amygdules are commonly filled with calcite. Minor

phenocrysts consist of pyroxene and plagioclase.

Felsic volcanic rocks in the Antinouri Lake Brook area are generally flow banded and porphyritic. Colour ranges from light orange to a deeper red orange. The groundmass is aphanitic with phenocrysts of quartz and feldspar. In thin-section some display eutaxitic texture. Some felsic welded crystal tuffs are also present.

Major and trace element geochemistry and pyroxene compositions indicate that the mafic rocks are both tholeiitic and calc-alkalic in composition. They are thought to have formed in co-existing extensional and compressional environments during Siluro-Devonian transpression in the northern Appalachian Orogen.