
**A study of the Manicouagan shear zone in the
Grenville Province of eastern Quebec: metamorphism
and structure in the footwall beneath the
high pressure belt**

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The Grenville Province is a deeply eroded continent-continent collisional orogen in which exposure of lower crustal deep roots of the orogen can be seen locally. Within this province, the Manicouagan shear zone in eastern Quebec is exposed for approximately 60 km along the shore of the Manicouagan reservoir and Mouchelagane River. The shear zone separates rocks from the underlying Archean basement and its Paleoproterozoic cover known as the Knob Lake Group, from the overlying High Pressure Belt. The underlying rocks in the footwall are known as the Gagnon terrane, which is a mid-crustal metamorphic fold and thrust belt.

Previous work has provided evidence of the metamorphic assemblages in the Manicouagan shear zone, where the shear zone is characterized by amphibolite-facies assemblages, which overprinted eclogite and granulite-facies in the base of the High Pressure Belt. Also, from previous work, a tectonic model for the formation of the fold-thrust belt has been developed, whereby NW-vergent cover-dominated thrusting is followed by deeper level thick skin thrusting, involving the Archean basement. This thrusting is thought to be out of sequence and occurred as a result of the emplacement of the HP Belt. Also, studies of the Gagnon terrane in the Manicouagan region show that a large unit of the thrust belt was back thrust to the SW. In the field area NE-plunging lineations support SW directed back-thrusting during emplacement of the HP Belt.

The focus of this study is to document the structure and metamorphism of the footwall beneath the HP Belt. The footwall is imbricated into the thrust belt and is SW vergent, which is in contrast to the NW thrusting in the overlying HP Belt.