

Absolute dating of Meguma gold mineralization in the eastern Meguma Terrane using $^{40}\text{Ar}/^{39}\text{Ar}$ technique: chronological evidence for convergent metallotectonic processes in the Meguma Terrane at ca. 370 Ma

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Gold mineralization in the Meguma Terrane is hosted by Lower Paleozoic metaturbidites of the Meguma Group. The deposits are preferentially localized in steep, frequently over-

turned limbs of antiformal structures and more rarely hinge zones; other structures (e.g., kink zones) may also be important. Gold is confined to white, crystalline quartz which is generally

late in the paragenesis and is associated with Cu, Pb, Zn sulphides and Bi-Ag tellurides. Fluid inclusion and isotopic (C, O) data indicate remarkable uniformity among gold districts. Petrofabric studies of vein material indicate vein formation post-dated regional metamorphism, and deformation as a shear cleavage axial planar to the folded quartz veins overprints the regional (i.e., Acadian age) fabrics.

The age of vein formation at five districts (Beaver Dam, Caribou, Moose River, Upper Seal Harbour, Fifteen Mile Stream) has been obtained via $^{40}\text{Ar}/^{39}\text{Ar}$ analyses of vein-hosted biotite, muscovite and amphibole. The data are generally similar with plateau ages of ca. 370 ± 5 Ma defined for most samples. There is no evidence for partial resetting of any sample and in all cases

ages close to the time of mineral, and hence vein formation are indicated. Consideration of resetting of mineral ages via granitic intrusions is unlikely given the variable distances of deposits from such bodies, the lack of evidence for convective cooling of Meguma Terrane granites, and the large range in blocking temperatures for the dated minerals (i.e., $\geq 500^\circ\text{C}$ to $\leq 300^\circ\text{C}$).

The formation of Meguma gold deposits at ca. 370 Ma is considered to be sensibly coincident with intrusion of large volumes of granitic (\pm mafic) magma and shear zone development throughout the Meguma Terrane. The convergence of these processes which together created structural anisotropies for thermally generated metamorphic fluids is considered to be an important part of gold metallogeny in the Meguma Terrane.