GEOLOGY OF THE INMONT (ROBB-MONTBRAY) ZONE 3 STRIPPED OUTCROP

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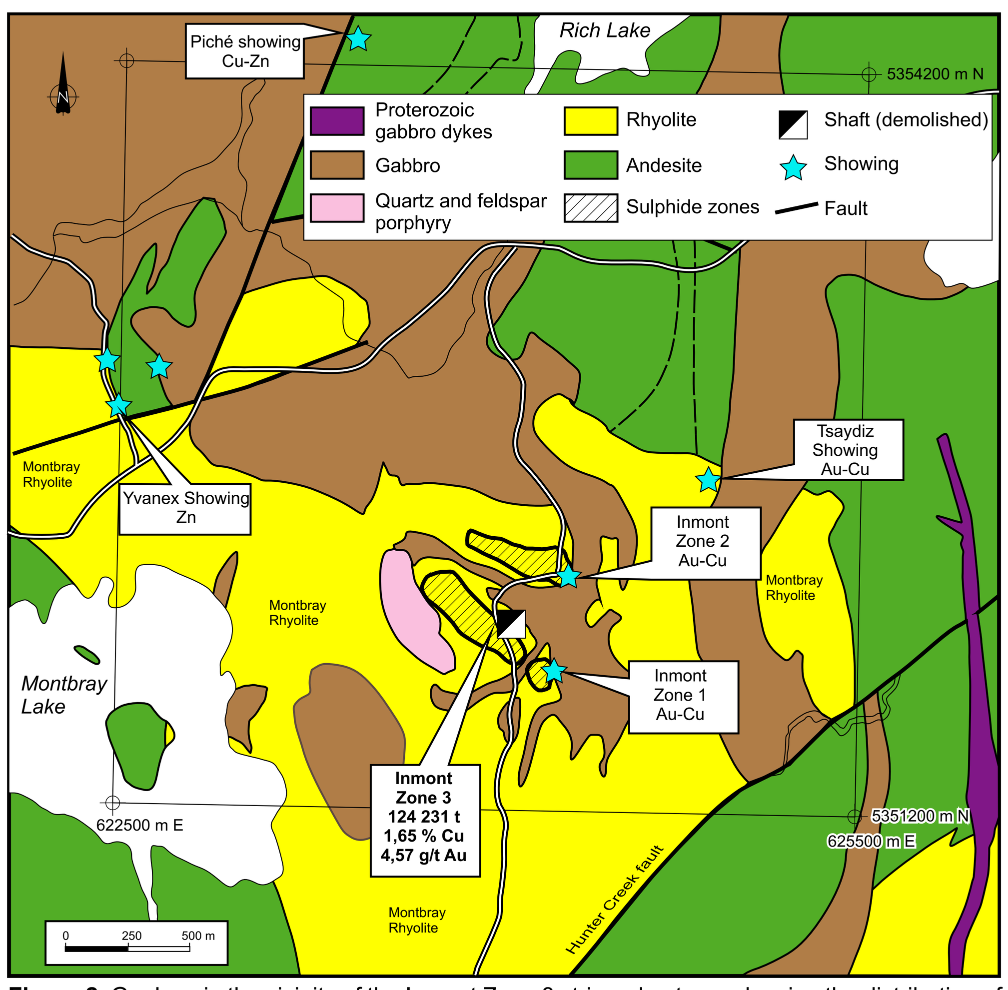


Figure 2. Geology in the vicinity of the Inmont Zone 3 stripped outcrop showing the distribution of the Montbray rhyolite and the location of the other mineralized occurences of the area. From Goutier et al. (2009).

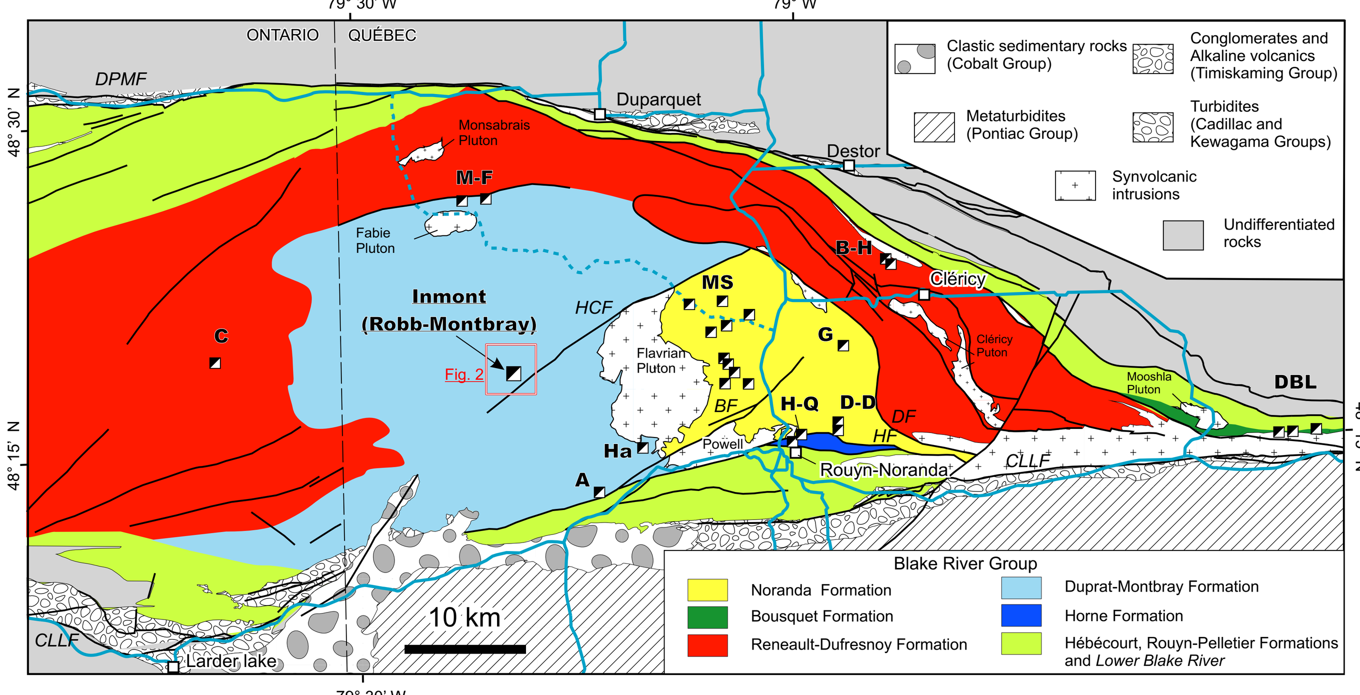


Figure 1. Map of the Blake River Group showing the geological formations, the main faults and intrusions, and the mines. The Inmont (Robb-Montbray) mine is located in the Duprat-Montbray Formation, west of the Flavrian synvolcanic intrusion ("West Blake River"). A=Aldermac, B-H=Bouchard-Hébert, BF=Beauchastel fault, C=Canagau, CLLF=Cadillac-Larder Lake fault, D-D=Deldona-Delbridge, DBL=Doyon-Bousquet-LaRonde, DF=d'Alembert fault, DPMF=Destor-Porcupine-Manneville fault, G=Gallen, H-Q=Horne-Quemont, Ha=Halliwell, HCF=Hunter Creek fault, HF=Horne fault, M-F=Magusi-Fabie, MS=Mine Sequence. From Goutier et al. (2009).

Geology of the Inmont (Robb-Montbray) Zone 3 stripped outcrop

This map illustrates the main alteration assemblages and facies observed on the stripped outcrop of the Zone 3 at the Inmont (Robb-Montbray) mine. The mineralization and its alteration system are emplaced within flow-banded, lobate and volcaniclastic rhyolites. The distribution of the alteration is strongly controlled by the volcanic facies and structures with fracture-controlled chlorite veins and diffuse quartz, sericite and chlorite gradually replacing or invading the lobe contacts, the flow-banded rhyolite, and the volcaniclastic rhyolite. This architecture is typical of the "Noranda-type" model of volcanogenic massive sulphide systems with mostly discordant, well defined chlorite alteration pipes surrounded by diffuse sericite-chlorite and quartz alteration within flow-dominated sequences.

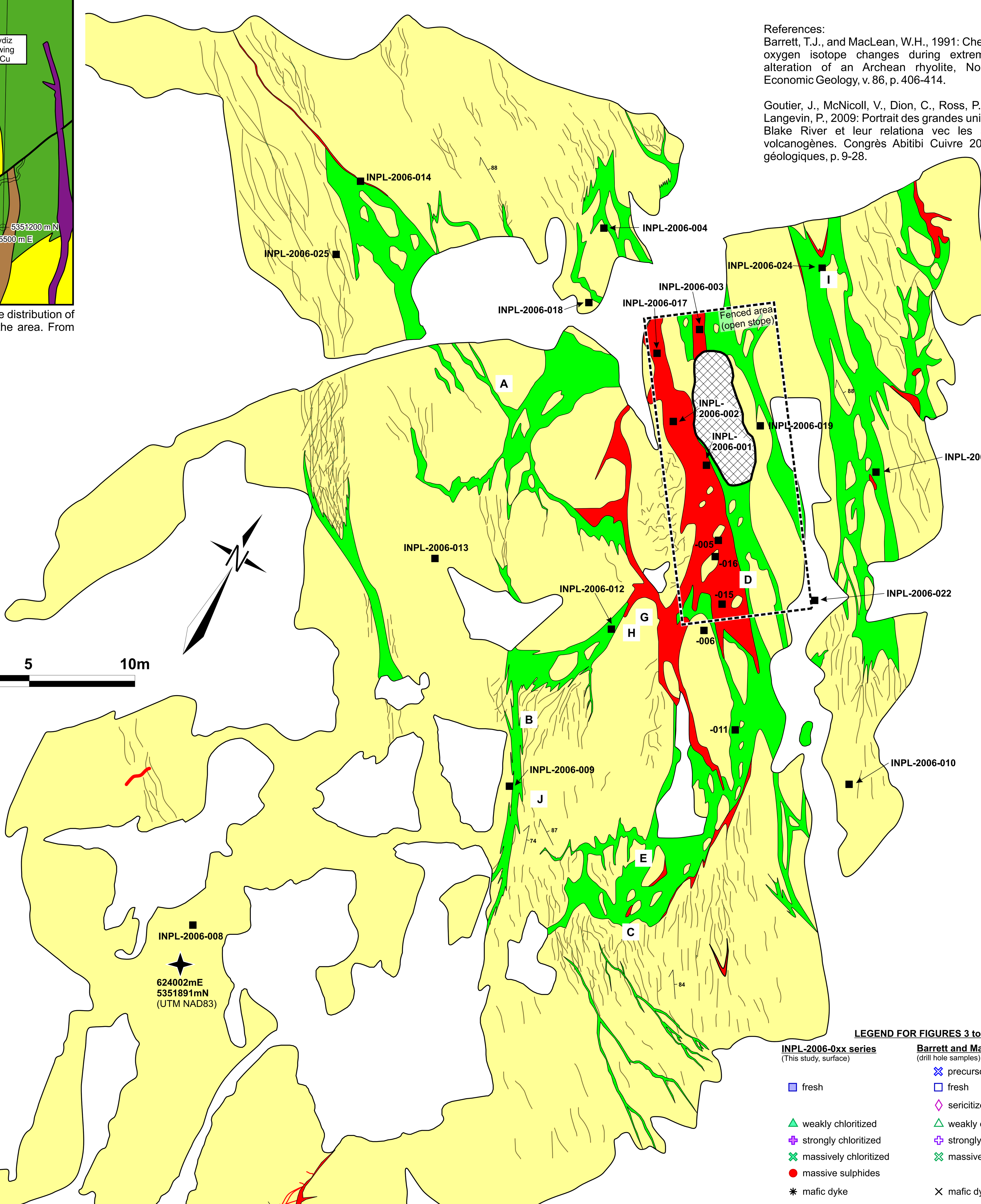
Recommended citation:
Mercier-Langevin, P., Ross, P.-S., Dion, C., Goutier, J., and Dubé, B., 2010: Geology of the Inmont (Robb-Montbray) Zone 3 stripped outcrop; Geological Survey of Canada; Open File 6546.

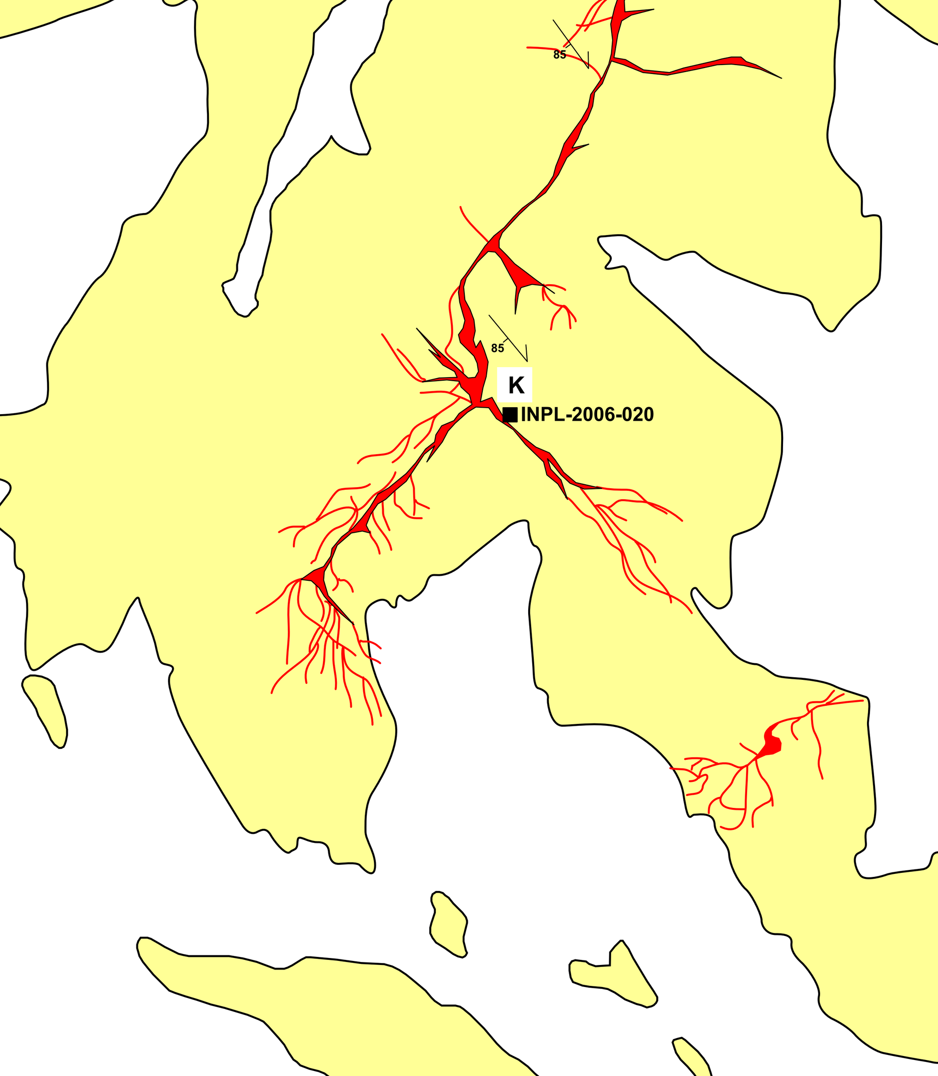
References:
Barrett, T.J., and MacLean, W.H., 1991: Chemical, mass, and oxygen isotope changes during extreme hydrothermal alteration of an Archean rhyolite, Noranda, Quebec; Economic Geology, v. 86, p. 406-414.

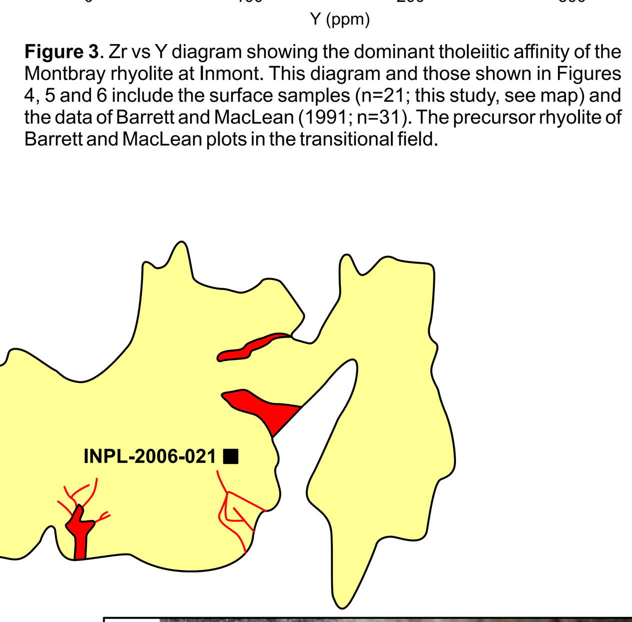
Goutier, J., McNicoll, V., Dion, C., Ross, P.-S., and Mercier-Langevin, P., 2009: Portrait des grandes unités du Groupe de Blake River et leur relationa vec les sulfures massifs volcanogènes. Congrès Abitibi Cuivre 2009 - Excrusions géologiques, p. 9-28.

MAP LEGEND

- Rhyolitic flow-lobe and flow-breccia complex. Mild to moderate pervasive sericite and chlorite alteration with local disseminated sulphides
- Massive chlorite alteration with local sulphide veinlets and disseminations
- Semi-massive to massive sulphides. Chalcopyrite and pyrite
- Invasive chlorite-sericite alteration (veins) and sulphide impregnations
- Sulphide stringers and veinlets
- Main foliation
- ■ INPL-2006-0xx Sample location and number
- A Photo location and number







LEGEND FOR FIGURES 3 to 6

INPL-2006-0xx series (This study, surface)	Barrett and MacLean (1991) series (drill hole samples)
	precursor
fresh	fresh
	sericitized
weakly chloritized	weakly chloritized
strongly chloritized	strongly chloritized
massively chloritized	massively chloritized
massive sulphides	
mafic dyke	mafic dyke

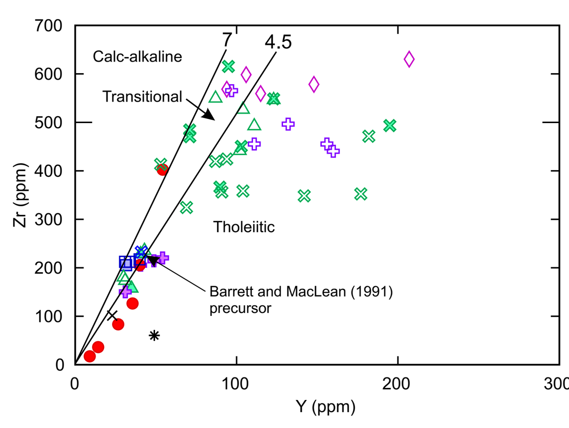


Figure 3. Zr vs Y diagram showing the dominant tholeiitic affinity of the Montbray rhyolite at Inmont. This diagram and those shown in Figures 4, 5 and 6 include the surface samples (n=21; this study, see map) and the data of Barrett and MacLean (1991; n=31). The precursor rhyolite of Barrett and MacLean plots in the transitional field.

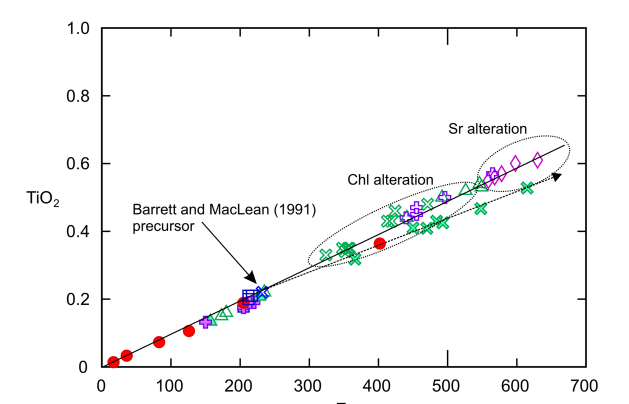
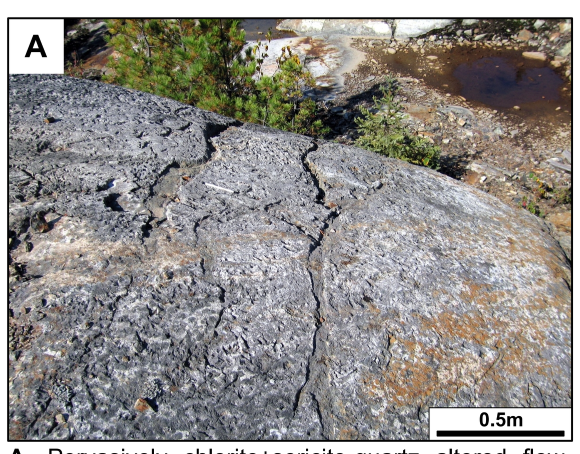
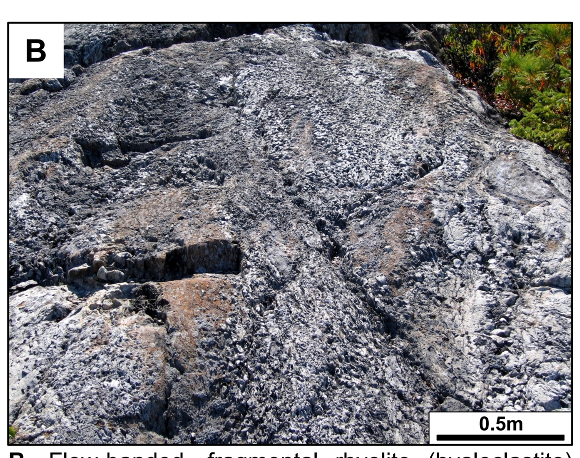


Figure 4. TiO2 vs Zr diagram showing the major mass loss associated with the sericite alteration and moderate mass loss associated with the chloritization. This diagram also suggests some Ti mobility with extreme chloritization (dashed arrow).

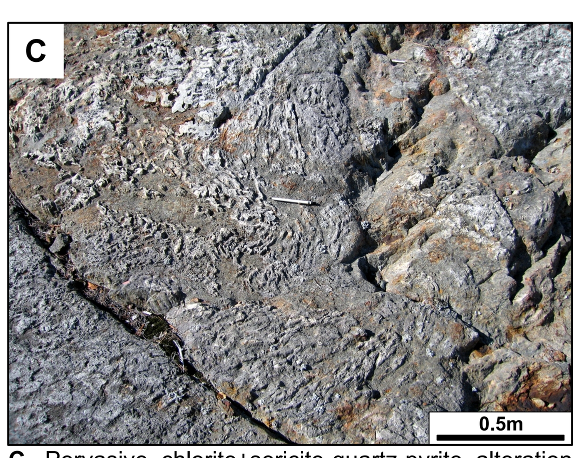


A. Pervasively chlorite±sericite-quartz altered flow-banded, coherent to volcaniclastic rhyolite cut by narrow discordant, fracture-controlled chlorite veins.



B. Flow-banded, fragmental rhyolite (hyaloclastite) invaded and partially replaced by chlorite-only and chlorite-sericite-quartz alteration assemblages.

I. Highly-strained pyrite veins (folding and transposition) within intensely sericitized rhyolite (sericite schist), north-northeast of the main alteration-mineralization zone. Sample INPL-2006-024.



C. Pervasive chlorite±sericite-quartz-pyrite alteration invading and gradually replacing the flow-banded rhyolite, illustrating the influence of the volcanic textures on the alteration intensity and distribution.

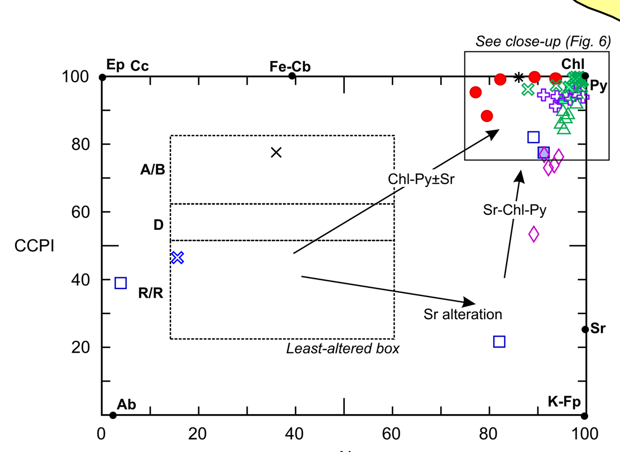


Figure 5. Box Plot diagram for the altered rhyolites at Inmont showing the vectors toward intense chlorite alteration associated with the mineralization.
AI=100*[(MgO+K2O)/(MgO+K2O+Na2O+CaO)]
CCPI=100*[(MgO+Fe2O3)/(MgO+Fe2O3+Na2O+K2O)]

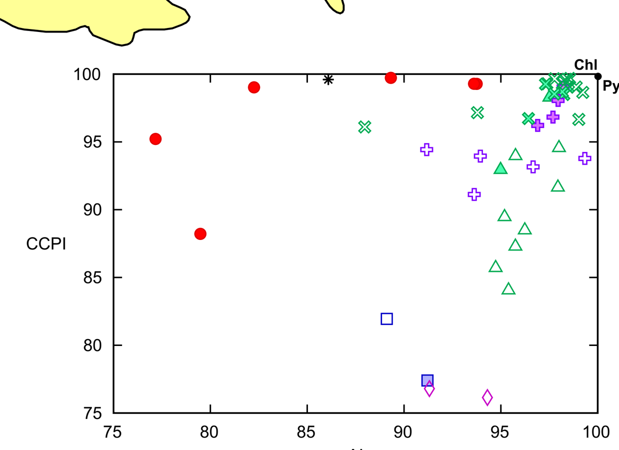
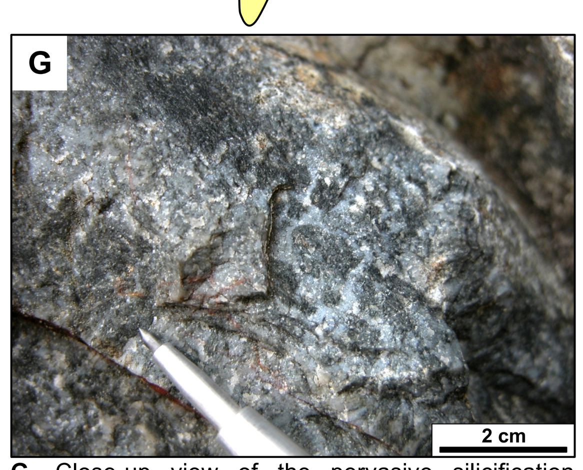
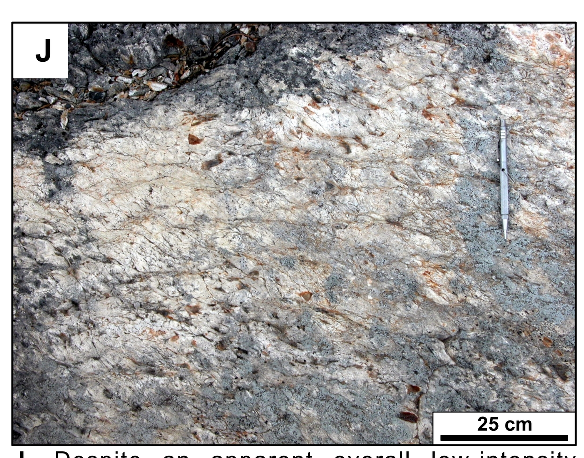


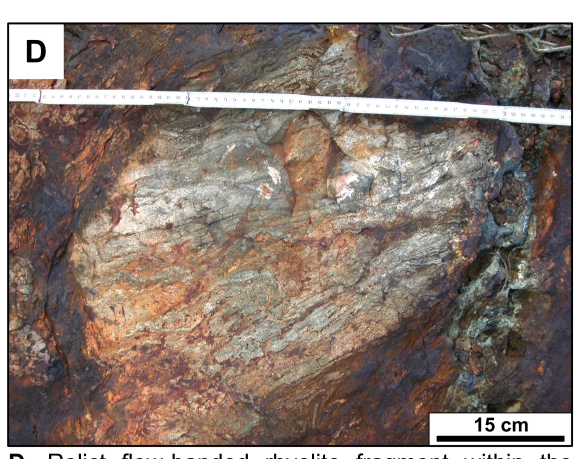
Figure 6. Close-up view of the upper right corner of Figure 5.
AI=100*[(MgO+K2O)/(MgO+K2O+Na2O+CaO)]
CCPI=100*[(MgO+Fe2O3)/(MgO+Fe2O3+Na2O+K2O)]



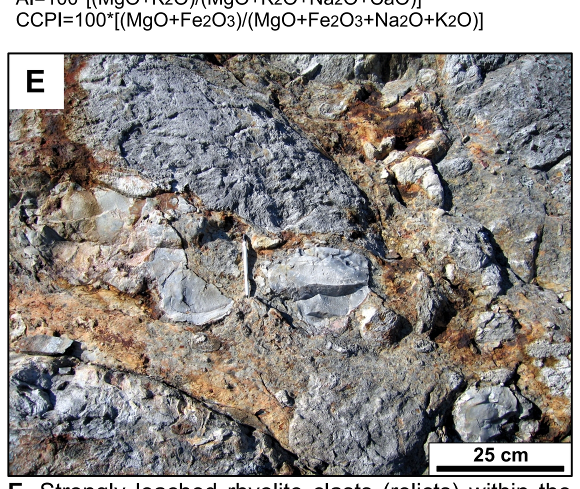
G. Close-up view of the pervasive silicification developed within the rhyolite. The silicification seems to be superimposed on a previously chloritized rhyolite. Compare with photo H.



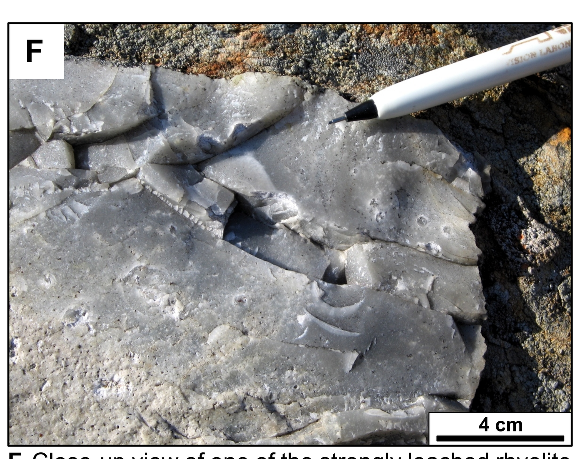
J. Despite an apparent overall low-intensity deformation at the outcrop scale, high-strain (shear) zones are locally developed within the pervasively altered (sericite-chlorite) rhyolites.



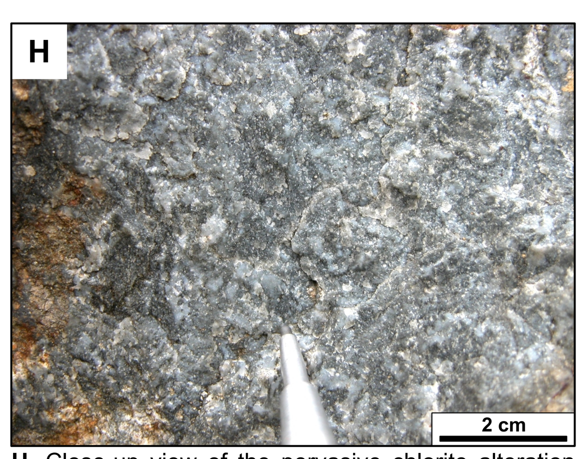
D. Relict flow-banded rhyolite fragment within the intensively chlorite-altered and mineralized alteration zone or conduit ("alteration pipe").



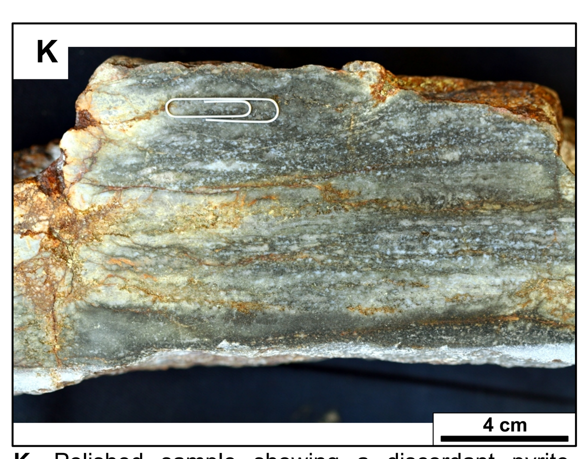
E. Strongly leached rhyolite clasts (relicts) within the main chlorite alteration pipe of high-temperature upflow zone. The leaching is more intense near the margins whereas the core is not as altered.



F. Close-up view of one of the strongly leached rhyolite clasts from photo E, showing the highly siliceous rims, and well-preserved quartz phenocrysts that caracterize the less altered rhyolite.



H. Close-up view of the pervasive chlorite alteration developed within the rhyolite. The chloritization seems to be superimposed on a previously silicified rhyolite. Compare with photo G.



K. Polished sample showing a discordant pyrite-chalcopyrite vein and the pervasive alteration percolating from the vein along the flow bands in a coherent rhyolite. Sample INPL-2006-020.