





plagioclase and hornblende.

Detailed view of the Cerro Corona intrusive complex, from Gold Fields mapping

# Characterization of igneous rocks in the Hualgayoc mining district, Cerro Corona, northern Peru

1Department of Earth and Environmental Sciences, University of Ottawa, Ottawa, Ontario, Canada; 2Gold Fields La Cima, Lima, Peru

## **Propylitic alteration**









mica in matrix and plagioclase (San Migue

Minor potassic overprint affects plagioclase in some samples, forming white micas.

Quijote.









(Choro Blanco).





6)Summary and future work e intrusions are all dioritic with the exception of the Cerro Hualgatoc rhyolite. ligh-temperature potassic alteration is only evident in the Cerro Corona intrusion. The other intrusion shows either advanced argilic, phyllic, propylitic or weak chlorite alteration, with only Cerro Hualgayoc and Las aiguillas intrusion being

The REE patterns indicate that all the intrusions, excepted Las Gordas, undertook similar crystallization/fractionation

Future work includes: clearly identifying the cause of the adakitic-like signature, calculating the age of the intrusions that have not been previously dated using U-Pb method on zircon, and investigating the relation between the intrusions in orde to have a better understanding of the igneous activity in the Hualgayoc area.



uOttawa





Alteration minerals are epidote, chlorite and magnetite, replacing biotite or in the matrix. Hornblende is relatively unaltered

Minor Titanite is found in Cerro

## Incipient choritization and unaltered







natrix and replacing plagioclase (Sinchao







apatite (Las Aquillas



CC phase 4 CC phase 4b CC phase 5 CC phase 5b



Rare earth elements spider diagram, normalized to chondrite

and chlorite in the matrix (San Migue

🔺 San Nicolas La Ce Pr Nd Sm Eu Gd Tb Dy Ho Er Tm Yb

Cerro Jesus

Las Gordas

The intrusions show a typical rare earth element pattern commonly found in rocks from arc setting, with LREE enrichment and HREE depletion. We note that there is not a significant Eu anomaly, which could be explained by a late crystallization of plagioclase caused by high amount of H2O in the

rent magma.

San Nicolas

nagma. There is no maio ence between the intrusion E patterns, excepted for Las Gordas which is more fractioned and more depleted in HREE. This could be caused by an early vstallization of amphibole in the

The intrusions also show an adakitic-like signature with low ttrium and high Strontium/Yttriu ratio.This signature could have different origins, such as the partial nelting of the subducting Nazca Plate, or various

crystallization/fractionation process involving early crystallization of amphibole, depleting Y, and late crystallization of plagioclases, which are rich in Sr.

References Morfin et al. (2016)

Mortensen et al. (1997)

Acknowledgement

Gold Fields Cerro Corrona geologists Jeffrey Hedenquist Samuel Morfin Glenn Poirier Alain Mauviel