between the actinolite alteration and albite alteration, and how these alteration types affect mineralization at the GLD. Unmineralized gabbros will also be examined in order to quantify metasomatism. **(*SS9; Wed. Poster*)**

Mineral geochemistry of granites and pegmatites from Seixoso-Vieiros pegmatite field, northern Portugal

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The Seixoso-Vieiros pegmatite field is located in northern Portugal and contains numerous granitic pegmatite-aplite veins (Seixoso and Vieiros pegmatites). The studied area is included in "Galicia Trás os Montes geotectonic zone". The area is surrounded by Variscan granitoids: at NW by late-tectonic Celorico de Basto granite massif, and at SE by the syntectonic Felgueiras granodiorite. The pegmatites are hosted by schists of Silurian age within the cordierite-andalusite isograde. The field is known for old mining cassiterite and columbite-tantalite in last century.

In Seixoso area also outcrops two granite specialized cupolas at Seixoso and Outeiro and also numerous small apices or dike-like bodies. The cupolas exhibit a muscovite tourmaline facies on the apex roofs. These facies evolved from a biotite bearing facies at depth. This is shown by Outeiro open pit, a very heterogenous unit, characterized by a subhorizontal layering accentuated by pervasive albitization and greisinization process.

The Outeiro granitic body contains typical granitic mineral assemblage and lithium-bearing minerals, such as amblygonite-montebrasite, petalite, cookeite, although most of them in accessory quantity together with beryl, chrysoberyl, tourmaline, sekaninaite, among others. In the surrounding pegmatitic segregations we found Li-bearing minerals.

Muscovites and K-feldspars of Outeiro granite and surrounding Seixoso pegmatites were studied by Electron-probe microanalyses (EMPA). The results for muscovite from Outeiro, reveal 1203 ppm of Rb (K/Rb =72) and 4980 ppm of Rb (K/Rb ratio is 15) for the Seixoso pegmatites. In K-feldspar the values at Outeiro are 968 ppm of Rb (K/Rb ratio is 138) and 5762 ppm of Rb (K/Rb = 23) to Seixoso pegmatites.

As was suggested in the past from bulk rock analysis, these results show a granitic system evolution from Outeiro Granitic body to surrounding Seixoso pegmatites. **(*SY2; Thurs. Poster*)**

Definition of structural controls on formation of lode deposits of associated to mayor OTU shear zone fault system at El Limon Au vein, Zaragoza - Antioquia, Colombia

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The Zaragoza area is characterized by the occurrence of a sequence of metamorphosed Paleozoic rocks of the Cajamarca complex, which were intruded by Jurassic quartz-diorites and granodiorites associated to the Segovia batholith. All these units are covered by latest Tertiary and Quaternary alluvial deposits. In this geological context emplace a series of Au – Ag veins composed of pyrite, Pb-sulfides (galena) and sphalerite with quartz. These veins mainly define NS trends and dip with varying inclinations to W.

El Limon deposit has been predicted stressing a direct relationship with the dynamics of the OTU fault and its associated secondary structures [1],[2]. This approach has been corroborated by detailed survey geological mapping during field work, showing that the structures in which the veins are located with variated width and mineralization (N05-10W/15-20W and N05-15W/30-45SW) but very well defined trends (fluid flow in cracks system associated with shear Zone - Riedel) correspond to two overprinted Riedel shear systems and apparent shear zones with two temporal occurrences consistent with a very expressed change in the system of regional stress. That can be very important for wing cracks and schelones development, represented by veins and veinlets. On the planes of the El Limon vein and other secondary veins, as well as faults that cut the vein, could be found gouge development, which has abundant sulfides and calcite.

To the East of the area can be found phyllonites and mylonites marking the trace of the OTU fault, with an obvious shear zone trend N10-30W and about 50m wide. There can be observed kinematic indicators showing a dextral movement, in the top of this shear zone may be found a folded and faulted fine sandstone alluvial formation (not known the age of this formation, thus to be able to know the age of the last movement) with about 60m of difference with the current Juan Vara creek level, gauge development on the veins and local faults, shows a clear recent tectonic activity in the area, the structures show that this last movement of the its fault was a OTU fault reversed displacement. All the collected evidence of structural, lithological and mineralogical nature associated with El Limon Deposit gives insights that this corresponds to a Shear Zone Hosted Orogenic Gold Deposit [3],[4]. **(*GS4; Fri. 9:00*)**

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Geodynamic influences on the genesis of Archean world-class gold-rich VMS deposits: Examples from the Blake River Group, Abitibi greenstone belt, Canada

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Six of the world's richest and largest gold-rich volcanogenic massive sulphide (VMS) deposits are located in the 2704-2695 Ma Blake River Group (BRG) of the Abitibi greenstone belt, including the two largest ever found (Horne: 54 Mt, 328 t Au, and LaRonde Penna: 80 Mt, 290 t Au), suggesting district and deposit-scale primary geological control(s) on the gold enrichment in VMS deposits.

The gold-rich VMS deposits of the BRG are found in distinctly different volcanic and structural settings from other "conventional" VMS deposits in the district. The ~2701 Ma Horne gold-rich deposit is separated in time and space from the ~2698 Ma Noranda Mine Sequence Cu-Zn VMS; it is located in the southern part of the Noranda camp in fault-bounded structural blocks separated from the slightly younger Cu-Zn deposits. The Bousquet Formation, which hosts the ~2698 Ma LaRonde Penna deposit, was coeval with the volcanic rocks that host the Cu-Zn VMS of the Noranda Mine Sequence but is distinguished by its transitional to calc-alkaline affinity and dominantly felsic composition. The Bousquet Formation is thought to have been formed in a volcanic complex at the periphery of the central part of the BRG, possibly in an area characterized by a thicker crust undergoing early extension and closer to an inferred arc (immature or early arc-rift stage). Recent dating in the BRG indicates that Horne also formed during an episode of early extension-subsidence and transitional felsic volcanism at Noranda (2702-2701 Ma). Extension, VMS-related hydrothermal activity and transitional to calc-alkaline volcanism moved away from the central part of the BRG, and by 2698-2697 Ma, at which time Horne had already formed, the Cu-Zn deposits of the Noranda Mine Sequence were being deposited in the more mature, tholeiitic to transitional, mafic-dominated extensional setting.

Despite obvious limitations of reconstructions of Archean volcanic complexes, analogies can be made with the architecture and evolution of modern volcanic arcs such as those formed along the