

Paper Number: 1623

Polymetallic mineralizations in the Fueguian Collisional Orogen, **Southern Patagonia**, Argentina: Syngentic or epigenetic deposits? New metallogenic insights

Zappettini, E. O.¹ and Márquez, M.²

1. Servicio Geológico Minero Argentino (SEGEMAR), Buenos Aires, Argentina

2. Servicio Geológico Minero Argentino (SEGEMAR), Comodoro Rivadavia, Argentina

The presence of polymetallic mineralizations on the southwest slope of Mount Susana (12 km west of Ushuaia, Tierra del Fuego) has been known since the 1940s, when a polymetallic mineralization was discovered in the area nowadays known as Mina Beatriz. The mineralization consists of Pb-Zn-Cu-Ag sulfides and sulfosalts associated with quartz and calcite, and partially tectonized. In the 1990s the mining company Yamana carried out an exploration program at the Fueguian Cordillera, south of Lake Fagnano, using regional airborne geophysics. This led to identifying pyritized belts that include base metals deposits (e.g. Arroyo Rojo and Sargent). Several authors have proposed a syngenetic origin for all these mineralizations, which are hosted in Jurassic rhyolites and/or sediments, classifying them as Kuroko type submarine volcanogenic deposits (e.g. [1] and references therein).

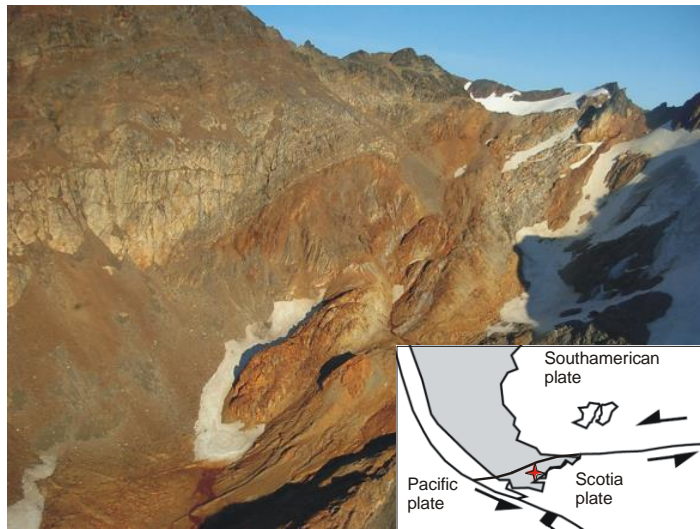


Figure 1: Polymetallic mineralization structurally controlled in a shear zone corridor. Arroyo Rojo, Tierra del Fuego
tectonic exhumation).

In recent years, significant progress was made in the understanding of the processes, chronology and evolution of the Fueguian Collisional Orogen, located at the northern edge of the Scotia Plate. Regional metamorphism and a strong mylonitic foliation locally affecting early Cretaceous to Jurassic volcanics and sediments are related to the closure and collision of the Rocas Verdes back-arc basin. The structures that host the metalliferous mineralizations are controlled by the mylonitic foliation and their age, established through stratigraphic, tectonic and geochronological information, is post-Hauterivian to pre-Campanian (the latter being the age of posttectonic intrusions that affect the Mesozoic rocks after their

These criteria, combined with mineralogical, structural and hydrothermal alteration mapping of the main deposits, allow questioning the syngenetic origin of the mineralizations, their Jurassic age and classification as Kuroko type submarine volcanogenic deposits. We propose, instead, as a working hypothesis, their affiliation to the epithermal intermediate sulphidation model.

[1] Biel et al. (2012) Journal of South American Earth Sciences 35: 62-73

