

Thermochronological constraints to mineralizations of the Navidad district (Argentina)

The Navidad district, located in the SW margin of the Sumúncura Massif (northern Patagonia), is an advanced exploration project with resources of Ag, Pb and significant contents of Cu and Zn that place it in the category of “world class” deposit. It constitutes a sub-basin of the Cañadón Asfalto Basin and it is hosted in volcanic and sedimentary rocks of the Middle to Late Jurassic.

A main goal of the project is the reconstruction of thermal and tectonic history of the Navidad basin. The most accepted models are based on a Late Jurassic rifting phase, during which continental blocks are tilted along listric faults (e.g. Sauzal fault). Faulting is followed by a subsidence phase with lacustrine sedimentation and, finally, by a Tertiary inversion phase. Our results should allow to test the hypothesis that mineralization occurred after the faulting event, that is in a post-rift phase. We will test also the idea that hydrothermal fluids were carried out along the Sauzal fault and other related faults.

The first step of the project will be sampling and field analysis of the investigated area. A careful structural analysis will focus on relationships between mineralization and tectonic patterns. Then samples will be analyzed by thermochronological techniques whereas the hydrothermal alteration parageneses will be investigated through integration of different methodologies: clay extraction, electronic microscopy, microanalyses (EDS-WDS), XRD, FTIR and microthermometric analysis of fluid inclusions assemblages.

The outcome of this project will be a genetic model that could be applied to mineral exploration of other regions of Patagonia with similar tectonic setting.

The project will be in cooperation with the Universidad Nacional del Comahue (dr. Marta Franchini) and sponsored by CONICET.